TECHNICAL REPORT

Neighborhood Effects on Crime and Youth Violence

The Role of Business Improvement Districts in Los Angeles

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Preface

About This Report

This report assesses the differences in the priorities of business improvement districts (BIDs) in Los Angeles (L.A.) and their effects on reported violent crime and youth violence. The report examines whether residing in neighborhoods exposed to BIDs reduces a youth's risk to neighborhood violence and improves the overall social environment of one's neighborhood compared to living in similarly situated neighborhoods not exposed to BIDs.

In September 2005, the Centers for Disease Control and Prevention (CDC) awarded the RAND Corporation a cooperative agreement to study BIDs' impact on youth violence and community-level change. This project involves a two-phase study that assesses BIDs' effects on youth violence and neighborhood change. The first phase is comprised of a baseline comparison of families living in L.A. neighborhoods exposed to BIDs and similarly situated L.A. neighborhoods not exposed to BIDs, a description of BID priorities, and an assessment of changes in violent crime in areas before and after the adoption of BIDs. Here, we provide the documentation for phase 1. The second phase will examine BIDs' longer-term effects on youth violence and neighborhood change.

This report will be of interest to policymakers involved in efforts to revitalize urban neighborhoods, staff in BID organizations around the world, L.A. city officials working with local BIDs, public-health officials interested in injury prevention through community-change programs, crime- and violence-prevention audiences, and those in the general public interested in neighborhood effects on violence. This report also builds on a long-standing tradition of crime-prevention and health work at the RAND Corporation dedicated to understanding individual and neighborhood effects on violence and other negative health outcomes, and policy options for reducing their social burden.

The RAND Safety and Justice Program

This research was conducted under the auspices of the Safety and Justice Program within RAND Infrastructure, Safety, and Environment (ISE). The mission of RAND Infrastructure, Safety, and Environment is to improve the development, operation, use, and protection of society's essential physical assets and natural resources and to enhance the related social assets of safety and security of individuals in transit and in their workplaces and communities. Safety and Justice Program research addresses occupational safety, transportation safety, food safety, and public safety—including violence, policing, corrections, substance abuse, and public integrity.

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Summary

Despite declines in youth violence nationally in the past decade, incidence of youth violence and victimization—from assaults to homicide—continue to be a pressing public-safety and public-health concern. Youth violence is also a particular concern for low-income, minority communities, where poverty, family instability, and unemployment provide a fertile context for gangs and illicit drug markets. Due to public-safety and public-health effects of youth violence and the documented association between community socioeconomic conditions and violence, both public-safety and public-health officials and researchers have invested heavily in developing and examining community-level responses to youth violence. While some of these community-level approaches have shown evidence of effectiveness, they are often expensive, difficult to sustain, and hard to replicate. It is worthwhile then to consider community-level interventions and activities that might address underlying environmental conditions that facilitate youth violence rates in communities.

In this report, RAND investigators examined the impact of business improvement districts (BIDs) on crime and youth violence in Los Angeles (L.A.). BIDs are self-organizing, local public-private organizations that collect assessments and invest in local-area service provisions and activities, such as place promotion, street cleaning, and public safety. Such activities can contribute to community-level attributes that might reduce crime and youth violence by increasing informal social control, reducing visible signs of disorder and blight, improving order maintenance, and providing enriched employment opportunities by facilitating overall improvements in the local business environment.

In Chapter One, we review the literature on community characteristics that are associated with elevated rates of youth violence. In this review, we highlight the key theoretical constructs, such as neighborhood perceptions of collective efficacy and social capital and physical and social disorder that have been empirically associated with crime and violence. We then describe the limited research suggesting that well-functioning BIDs appear to directly affect community-level attributes of crime and violence. We conclude this chapter with a detailed description of our study setting and the location of BIDs in Los Angeles and methods used to assess their effects on youth violence and crime more generally.

Chapter Two provides a descriptive analysis of the budget data, as well as results from in-depth interviews with BID officials that catalog the differences in the priorities and functions of BIDs in Los Angeles. We find that a wide range of BIDs are observable in Los Angeles, from downtown BIDs focused on disorder, crime, and cleanliness with annual budgets in the millions to small BIDs with very little operating capital from which to generate measurable community impacts. In terms of our theoretical model, we are most interested in those BIDs focused on activities more likely to reduce crime and violence than others. In this chapter, we

describe the BIDs in terms of their public safety (or *social control*), beautification (or *broken windows*), and marketing (or *place promotion*). These three domains encapsulate key proximal factors associated with levels of crime and violence in BID areas. We also assess BIDs' capacity to mobilize resources for their neighborhoods by examining the organizational and government relationships of the BIDs. We theorize that BIDs most likely to affect crime and youth violence will be those that devote considerable resources to public safety, beautification, and marketing while also having substantial connections to other organizations and local government service providers. We examine the proportion of BID spending on beautification, marketing, and public safety and note no statistically significant differences by demographic or household-income characteristics of their adjoining communities.

Chapter Three presents a limited systematic social observation of BID areas that focused on examining the variation in BIDs and their relationship with aspects of the social and physical environment (as measured by signs of social and physical disorder), as well as their relationship with community-level household and income characteristics measured by the decennial census. Our analysis of these data suggests that systematic variation in the physical signs of blight and social disorder exists between BIDs. Some BIDs are characterized by visible signs of trash, abandoned cars, and idle adults and teens congregating in public spaces, while other BIDs have no physical signs of blight or other indicators of community-level disorder or disinvestment. We also find that BIDs with more signs of social disorder also have, on average, lower household incomes within their residential populations and spend greater shares of their budgets on crime prevention and public safety, suggesting that these BIDs are responding to the environments in which they are situated.

Chapter Four gives results from a multilevel analysis of interview data collected by youth and caregivers in selected households in BID and comparison-group neighborhoods. The multilevel analysis links individual household features to neighborhood environmental measures to examine the effects of BIDs on the incidence of youth violence. The results from this cross-sectional analysis indicate that youth living in BIDs experience no difference in their exposure to youth violence in their neighborhoods than do youth living in comparison neighborhoods. A comparison of differences between individual BIDs and comparison neighborhoods suggests that the exposure to youth violence is not significantly lower in BIDs that spend a higher share of their resources on public safety. Consistent with other research, however, this analysis finds that individual household- and neighborhood-level features are independently associated with the incidence of youth violence. For example, youth living in households whose parents are immigrants to the United States are significantly less likely to experience violent victimizations than are youth from nonimmigrant households living in the same neighborhoods with similar socioeconomic status. These findings suggest that immigrant households act as a protective mechanism even in distressed neighborhoods, where the exposure to youth violence is a more prevalent reality. *Neighborhood collective efficacy*—or the willingness of residents to engage their neighbors and participate in community well-being—is also associated with a reduced incidence of youth violence. The associations between neighborhood collective efficacy and youth violence hold even after we take into account neighborhood-level differences in age compositions, poverty, population density, and violent-crime rates as reported by the police in prior years. Perceptions of problems with physical and social disorder in one's neighborhood is only slightly associated with youth violence.

Chapter Five presents an analysis of the relationship between the implementation of BIDs and changes in officially reported crimes. The analysis focuses on the associations between the eventual adoption of a BID in an area and the change in several reported crime outcomes, with a specific focus on violent crimes that are most likely to be experienced by youth and young adults. The results from this analysis indicate that BIDs have marginal effects on reducing total violent-crime rates but *are associated with significantly larger-than-expected reductions in robbery rates*. Consistent with the description of BID budget data and visual observations of BID areas, the effects of BIDs vary by BID location and appear to be strongest in BIDs that place a greater focus on public safety or have undergone significant economic development.

Chapter Six provides a summary and conclusion from these baseline data and analyses as they relate to BIDs' efforts at creating sustainable community-level change. At baseline, the data indicate wide variation in the characteristics of BID areas. The baseline analysis of household interviews compares BID to non-BID residents exposed to neighborhoods with similar community characteristics. It is, therefore, not surprising to find that BIDs do not exhibit consistent effects on youth violence, since we have placed a very conservative test of BID effects on these baseline data. By contrast, the longitudinal analysis of official crime reports that compares the rates of violent crime before and after the adoption of BIDs finds more positive effects of BIDs in lowering the rate of interpersonal crimes of violence and, in particular, robbery than of property or total reported felony crimes. In general, the results from this report provide mixed support for BIDs' effects on violence prevention. It is clear from this study that the simple adoption of a BID itself is not enough to produce systemic change in community conditions and foster reductions in youth violence. BIDs that are active and have enough capital to hire private security, clean streets of trash and debris, and organize with city service agencies to address merchant or property-owner concerns about community needs are more effective agents of community-level change. Whether these activities translate into lasting community-level effects and reductions in youth violence will be part of an ongoing research effort as this study moves into the future and examines the relationship between BID activities and neighborhood-level changes related to economic opportunities, disorder and blight, collective efficacy, and youth violence rates in subsequent years.

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Abbreviations

Add Health	National Longitudinal Study of Adolescent Health
BID	business improvement district
CAP	Chicago Area Project
CATI	computer-assisted telephone interviewing
CDC	Centers for Disease Control and Prevention
CDF	cumulative distribution function
CED	community economic development
CI	confidence interval
CPTED	crime prevention through environmental design
FBI	Federal Bureau of Investigation
GIS	geographic information system
HSPC	human subject protection committee
IPW	inverse-probability weighting
L.A.	Los Angeles
LAPD	Los Angeles Police Department
MST	mountain standard time
NC	neighborhood cluster
OR	odds ratio
RD	reporting district
RDD	random-digit dial
RTI	Research Triangle International
SD	standard deviation
SES	socioeconomic status

CHAPTER ONE

Introduction

Youth violence remains a topic of social concern. Communities characterized by high rates of family disruption, unemployment, concentrated poverty, and inaccessibility to economic opportunities appear to be particularly vulnerable to youth violence (Sampson, 1987; Sampson and Lauritsen, 1994; Moore and Tonry, 1998). Eighty years of social-science research has generated numerous theoretical explanations for these relationships, but there are few answers for how to create public policies that lead to necessary community change. Increasingly, policy-makers are seeking information on how to prevent children from growing up in environments that expose them to violence.

Urban sociologists in the first half of the 20th century chronicled the correlation between neighborhood environmental factors (e.g., poverty, percentage of single-parent households, population mobility, percentage foreign born) and juvenile delinquency, positing that neighborhood attributes influenced crime through their impact on community-level disorder, residential cohesion, and informal social control. Poverty and family disruption, for example, make it difficult for residents to establish common values and engage in relationships of mutual trust that establish neighborhood social control (Park, 1915; Shaw and McKay, 1942; Kornhauser, 1978). A broad literature has focused on identifying these patterns of community social disorganization and their relationship to violent behaviors, including those that occur among youth (Sampson and Lauritsen, 1994). Another line of research examines the role of community-based economic development and its broader role in facilitating community stability (Porter, 1997). Both of these streams of research have raised attention to community-level processes and their influence on health outcomes. Studying community-level effects is now a major research agenda in the public-health community (Kawachi and Berkman, 2003).

Public-policy research, however, has yet to identify specific, actionable community-level interventions that can effectively mediate the influence of these social and economic factors (see Sampson, 1995; Taylor, 2001). The majority of evaluations of community-level and community-based crime-prevention initiatives find that they have had little or no impact on modifying the social forces associated with crime and violence (Welsh and Hoshi, 2002).

The current study sought to examine the effectiveness of one type of promising community-based intervention—the business improvement district (BID)—on modifying factors at the community level associated with the incidence of youth violence. BIDs, by design, are grassroots, community-level interventions—though centered on the business community rather than the residential community—that are theoretically tied to the social processes outlined in community-based theories of neighborhood disorder and youth violence. BID activities often focus on addressing community-level processes, such as order maintenance, formal and informal social control, and community cohesion, that are associated with lower levels of youth violence. This introductory chapter frames the background literature and the theoretical underpinnings for explaining why BIDs could affect community conditions in distressed areas and reduce the burden of youth violence as well as other health outcomes. In addition, we provide a brief overview of our research site of Los Angeles (L.A.) and the methods used to evaluate the impact of BIDs on youth violence and community-level change.

Background and Significance

Despite declines in violent offending and victimization rates for youth during the 1990s (see Blumstein, Rivara, and Rosenfeld, 2000; Cook and Laub, 2002), violence remains a serious social-policy concern for adolescents (McLaughlin et al., 2000). Homicide remains a leading cause of death for African American youth (R. Anderson and Smith, 2003), and less-than-lethal forms of violence remain prevalent among youth in the United States (see Grunbaum et al., 2004). Moreover, the prevalence and incidence of both perpetration of and victimization from serious forms of youth violence is highly concentrated in disadvantaged urban communities (Sampson and Lauritsen, 1994; Hawkins et al., 1998). Although there has been a proliferation of studies examining community-based factors related to violence (Krivo and Peterson, 2000; Land, McCall, and Cohen, 1990; Sampson, 1987; Sampson, Raudenbush, and Earls, 1997; Sampson, Morenoff, and Raudenbush, 2005), few have examined the processes through which changes in community conditions are related to changes in the rates of youth violence (see Messner, Raffalovich, and McMillan, 2001).

Research indicates that African Americans, whites, and Hispanics live in vastly different neighborhood (ecological) contexts in urban America (Krivo and Peterson, 2000; Sampson and Wilson, 1995). In no U.S. city with a population over 100,000 do African American and white youth live in similarly situated neighborhood environments (Sampson and Wilson, 1995). Aggregate measures of family disruption (e.g., single-parent heads of household) are particularly important for explaining aggregate age patterns of violence for African American youth (Glaeser and Sacerdote, 1999; Ousey, 2000; Sampson, 1987; Sampson, Raudenbush, and Earls, 1997; Shihadeh and Steffensmeier, 1994). Racial differences in youth-violence outcomes are accounted for largely by the rate of single-parent households and concentrated poverty in inner-city neighborhoods (see Sampson, Morenoff, and Raudenbush, 2005).

It is worth noting, however, that the community- and structural-level indicators of youth violence found in contemporary research are consistent with the early work on neighborhood dynamics and their relationship to gangs and juvenile delinquency pioneered by urban sociologists at the University of Chicago in the 1920s (Thrasher, 1927; Shaw and McKay, 1942). These early studies presage present work in suggesting that poverty, relative deprivation, and a lack of community social cohesion foster a neighborhood environment in which the opportunities for delinquency and violence among youth can flourish.

Theoretical Explanations for Youth Violence at the Community Level

The idea that place matters in the formation of social interactions has a long history in sociology (Gieryn, 2000). From the social ecological perspective, it is argued that "every section and quarter of a city takes on something of the characteristics of its inhabitants" (Park, 1915, p. 579). This perspective also suggests that neighborhoods and neighborly interaction are the most basic forms of association and organize the life of cities (Park, 1915). Early research by

Shaw and McKay (1942) on juvenile delinquency in Chicago neighborhoods found stable patterns of localized juvenile offending over time. This research also found a consistent correlation with aggregate community measures of poverty, residential instability, and the heterogeneous ethnic composition of neighborhoods. Sprung from the theory of *social ecology*—that is, the idea that communities develop through a natural, organic process (Park, 1915)—this research suggested that community rates of juvenile delinquency and violence could be explained through the principle of *social disorganization*, or the inability of residents to form common values and maintain effective social controls (Bursik, 1988; Kornhauser, 1978; Sampson and Groves, 1989).

According to the social-disorganization perspective, neighborhood environmental or structural factors related to poverty, residential instability, and racial and ethnic heterogeneity make it difficult for residents to form common bonds, the result being the breakdown of community social order. Frederic Thrasher (1927) suggested that similar mechanisms produced youth gangs in Chicago neighborhoods. This early work on the community-level dynamics of youthful offending led to the creation of community organizations—such as the Chicago Area Project (CAP)—that were designed to engage delinquent youth, as well as provide economic opportunities and job-training programs in disadvantaged neighborhoods. CAP was designed specifically to mobilize local, informal social control in disadvantaged Chicago neighborhoods by providing alternative prosocial activities for youth, improving the physical environment of communities (e.g., fixing dilapidated housing and sanitation), and improving coordination with city and social services (e.g., police, social-work agencies). Unfortunately, evaluations of CAP found that it had only modest success (Kobrin, 1959; Finestone, 1976). CAP, however, does provide the theoretical foundation for the community-level change intervention on which the current study of BIDs builds.

Developing out of the tradition of social disorganization theory, abundant empirical research has investigated the aggregate social and economic processes that account for youth violence (Messner, Raffalovich, and McMillan, 2001; Osgood and Chambers, 2000; Ousey, 2000; Ousey and Augustine, 2001; Sampson, 1987; Sampson, Morenoff, and Raudenbush, 2005; Shihadeh and Steffensmeier, 1994). This volume of research indicates conclusively that measures of family disruption and concentrated poverty are associated with higher rates of youth-perpetrated violence in urban communities (MacDonald and Gover, 2005; Ousey, 2000; Sampson, 1987; Sampson, Morenoff, and Raudenbush, 2005; Shihadeh and Steffensmeier, 1994). The research literature indicates that the effects of these environmental factors vary geographically (Taylor, 2001). Research by Osgood and Chambers (2000), for example, indicates that there are differences between urban and rural counties in the predictors of aggregate youth-violence rates. In general, however, a review of research on the community-level correlates of youth violence indicates a significant association with aggregate measures of economic disadvantage, family status, and neighborhood social context (MacDonald and Gover, 2005; Ousey and Augustine, 2001; Rosenfeld, Bray, and Egley, 1999; Sampson, Morenoff, and Raudenbush, 2005).

There are various mechanisms for explaining how the presence of economic deprivation for families places children at an increased risk of living in communities characterized by higher rates of youth violence. For the purposes of this review, we focus on discussing community-level processes linked to social disorganization. The opportunity structure for youth violence appears to change with higher rates of poverty and its association with greater concentrations of delinquent peer groups (Elliott, Huizinga, and Menard, 1989; Farrington, 1989). Communities immersed in problems associated with gangs and drug distribution, for example, are more likely to have predatory environments that disable informal social control and invite violent and otherwise illegal activity by youth (Anderson, 1998; Herrenkohl et al., 2000; McLaughlin et al., 2000; Ousey and Augustine, 2001). In addition, the lack of jobs and economic opportunities for families in inner-city neighborhoods is associated with increased idleness, a decreased pool of employed men who are attractive spousal partners, and a decreased level of community supervision of youth (Sampson, 1987; W. Wilson, 1987).

Economic deprivation is also related to a lower rate of participation in social organizations that bond youth to larger institutions of social control (e.g., church, prosocial youth groups, school) (Janowitz, 1975; Kornhauser, 1978). However, official social-control mechanisms, such as law-enforcement interventions, are, by themselves, largely ineffective (Sherman, 1986). After all, the number of police officers per resident in even the highest-crime areas does not permit police officers to engage in consistent monitoring of youth, and the majority of uniformed police officers spend their time responding to calls for service (Sherman, 1995). Moreover, evaluations of community crime-prevention programs initiated by the police (e.g., Neighborhood Watch, community policing) have shown little success (see Sherman et al., 1998, for a review). The lack of an impact of police programs, therefore, suggests that the key to preventing youth violence lies within the broader community context of informal social-control mechanisms.

Social disorganization theory suggests that community organization is an important resource on which parents can draw to maintain supervision and control of youth (Bursik, 1988; Coleman, 1988; Sampson, 1987; Shaw and McKay, 1942). A key to this perspective is the influence of community normative social control. According to this perspective, economic disadvantage, higher levels of racial or ethnic heterogeneity, and a high degree of residential mobility affect a community's ability to control its residents and youth (Bursik, 1988; Kornhauser, 1978). Sampson and Groves' (1989) research suggests that economically disadvantaged communities suffer from a weak organizational base and have less ability to engage in the necessary informal social-control activities that inhibit crime and deviance. Results from work on the Project on Human Development in Chicago Neighborhoods further confirms the social disorganization perspective and finds that concentrated disadvantage affects violence, but its impact is mediated by the willingness of residents to come together and form a common set of values and engage in informal social-control practices, commonly referred to as *collective efficacy* (Sampson, Raudenbush, and Earls, 1997; Sampson and Raudenbush, 1999; Morenoff, Sampson, and Raudenbush, 2001).

The literature is clear in pointing to the importance of community-contextual variables in the social production of both adult and adolescent violence (Sampson and Lauritsen, 1994; Sampson, Morenoff, and Raudenbush, 2005). Importantly, research suggests that these macro-level factors are concentrated within ecological contexts or specific types of neighborhoods (Sampson, Morenoff, and Raudenbush, 2005). Furthermore, increases in crime and violence that result from these community-level processes appear to further disintegrate communities by making them even less attractive to business investment, thus producing a continued spiral of decay (Porter, 1997; Skogan, 1990). Communities characterized by these social and public-health problems associated with youth violence also have a decreased ability to marshal city services to help alleviate some of their social conditions (Bursik and Grasmick, 1993). In other words, disadvantaged communities not only lack the internal social and economic capital to create change but also have greater difficulty attracting both outside political capital and business investment, important aspects of community revitalization.

Unfortunately, there are few examples in the scientific literature that indicate how communities can effectively change for the positive; in particular, there is no record of substantial success in the area of youth outcomes. Yet research indicates that positive community-level change is possible even in disadvantaged areas (Taub, Taylor, and Dunham, 1984; Boston and Ross, 1997). Despite the wealth of knowledge about the community-level social and economic processes that generate youth violence, very little work has identified and tested how modifying the social, physical, and economic environment of areas can facilitate community-level change and a reduction in youth violence. While some scholars may point to economic revitalization efforts in many downtown or inner-city neighborhoods as examples of community-level change (Simon, 2001), these case studies often describe examples of neighborhoods that have undergone significant influx of upper-class residents (*gentrification*) and the subsequent decamping of poverty-stricken residents. There is a dearth of research on the specific role that interventions with a specific focus on changing community-level factors can play in facilitating positive change and the reduction in youth violence for residents of downtrodden neighborhoods. While research does indicate that the changing patterns of economic deprivation are associated with changes in youthful homicide-arrest rates on a national level (Messner, Raffalovich, and McMillan, 2001), the scientific literature has not identified specific, actionable, community-level interventions that can facilitate intraneighborhood social and economic changes and reductions in youth violence.

We argue that understanding how to generate community-level change focused on the reduction of youth violence should be a fundamental undertaking for the public-health community. Clearly, economic viability is an important component of community-level change, but the history of job relocation and economic impact of tax-based programs (e.g., empowerment zones) suggests more failures than successes with community-level change (McGahey, 1986; Peters and Fisher, 2002, 2004). In fact, the majority of success stories focus on gentrification or displacement of disadvantaged residents over community-based urban-renewal efforts that find mechanisms for improving community social order for established residents.

Economic Development, Community Organization, Crime, and Violence

As discussed in the preceding section, the notion that place matters in the social production of youth violence has captured the attention of social-science and public-health scholarship for decades. Despite large-scale, government-funded, community economic-development (CED) efforts targeted at areas of concentrated economic disadvantage (e.g., enterprise zones, empowerment zones, community-development block grants), there have been few defined success stories (Boarnet, 2001). Indeed, underemployment, poor housing, and youth violence remain a stable fact in many inner-city communities (Teitz, 1987; Porter, 1997; Gottlieb, 1997; Bushway and Reuter, 2002; Boarnet and Bogart, 1996; McGahey, 1986; Rogers and Tao, 2004; Spencer and Ong, 2004).

The failure of publicly funded community-based projects in housing and job development to show measurable results has led a number of researchers to call for CED models. In such models, local nonprofits take the place of traditional governmental programs in developing housing, employment, or business opportunities and enhancing the general quality of life for local residents in defined community boundaries (Simon, 2001). The CED model fits within the social disorganization perspective of community control by focusing on fostering change at the grassroots, community level.

While there are a variety of CED institutions, in this study, we focus on community-based BIDs. The BID model relies on special assessments of commercial properties located within designated business areas to augment services. These services typically include sanitation, security, place marketing, and planning efforts (Mitchell, 2001a). Some BIDs in the United States offer a wider range of services, including homeless outreach, employment and youth programming, and school-based youth activities (Stokes, 2002). Although dominated by private-sector interests, the majority of BIDs are public entities, chartered and regulated by general-purpose governments (as opposed to a specialized governmental function or a government subcontractor) (Briffault, 1999). The popularity of the BID model grew as both local governments and private business owners acknowledged the inefficiencies and inadequacies of public efforts at service delivery aimed at commercial areas. In short, urban commercial districts were forced to compete with suburban-style retail developments that, for years, specialized in delivering a seamless retail environment for the American middle class, in which many services were provided by the private sector (Wagner, Joder, and Mumphrey, 1995). A clear trade-off to BIDs compared to government-initiated economic-development efforts, such as empowerment zones, is that BIDs do not provide any direct governmental redistribution of resources from wealthier areas to more-depressed ones. And, because BIDs require a special assessment paid for by commercial properties, some businesses or landowners "resent having to make an additional payment to finance services they think should be paid for out of their existing tax dollars" (Briffault, 1999, p. 385). Most of the services delivered through BID assessment schemes, however, do not replace current public services. For example, in much of the United States, property owners are responsible for the safety and upkeep of the sidewalks abutting their properties. While common users may see sidewalks as public property, keeping them safe and free of hazards is generally not a public responsibility, although the public has regulatory powers over sidewalk use through zoning and code statutes. As BID services typically are directed toward sanitation and security of common sidewalks (and not interior spaces), these services are analogous to the common-area security and service arrangements evinced at private homeowners' associations (Houstoun, 1997).

In theory, the benefits accrued by BIDs exceed their costs, as evidenced by their growth. The number of BIDs has grown from a few locations in the 1970s to more than 500 today (Mitchell, 1999, 2001a). The BID model, a form of special-purpose government, aimed to solve the problems associated with ineffective public and private service coordination in many U.S. urban centers and inner-city retail areas. The attractiveness of BIDs to political leaders rests with the promise to deliver increased economic and employment activity at little or no direct cost to taxpayers (Bradley, 1995). Moreover, private-sector merchants prefer the BIDs' dedicated funding sources and control of local planning and programming over competition with other interests for the attention of local government. Many BIDs have increased their service roles in an attempt to broaden their impact on economic-development and planning functions. While some have challenged the role of BIDs and the potential conflicts that occur when having private-sector business interests become involved in the management of public spaces (Harcourt, 2005), the growth of BIDs is congruent with a general movement away from publicly controlled redevelopment efforts, often seen as inefficient and highly politicized, in favor of subcontracting functions, such as site selection and planning, financing (or deal making), place promotion, and project management, toward nonprofit development corporations (Fainstein, 1994; Hall and Hubbard, 1998). Consistent with social disorganization theory, BIDs fit into a movement away from wide-scale collective action toward a geographically targeted, place- or community-based solution to public problems, including crime and violence (Mallet, 1993).

A public body forms a BID through a vote of property owners within the district after a period of public disclosure and hearings. In addition to property assessments received within the district, BIDs rely on outside sources of income. Mainly, these come from competitive grant funds, governmental transfers, corporate sponsorship, or donations from philanthropic foundations (Mitchell, 1999; Stokes, 2002). BID resources vary locally and nationally in expenditures and management systems (Mitchell, 1999). Mitchell (1999) identified nine types of activities pursued by BIDs, including delivery of marketing services, policy advocacy, maintenance of the physical environment, capital improvements, public-space regulation, security, economic development, parking, and social services (Mitchell, 1999, 2001a, 2001b).

The proliferation of BIDs during the 1990s has caused some analysts to search for the economic and political causes of their ascendance. The rapid growth in BID use is illustrated in such urban centers as New York City, which, as of 2008, had 60 BIDs; Los Angeles, which had 30; San Diego with 19; Milwaukee with 16; and Philadelphia with 11 districts. There are a number of reasons that BIDs are an attractive approach to community-level change. For example, BIDs may provide more efficient methods for organizing local merchants to coordinate public-safety services for local employees and visitors and to control public urban space. The attractiveness of BIDs may, in part, be due to the limited resources of urban governments and the business community's need to develop their own localized service delivery (Mallet, 1995).

BIDs represent the relatively recent incarnation of the public-private partnership model employed throughout the modern history of urban redevelopment (see Frieden and Sagalyn, 1989; Squires, 1989; Fainstein, 1994; Wagner, Joder, and Mumphrey, 1995; Mier, 1995). However, BIDs represent an interesting twist on the public-private partnership model as traditionally employed. In contrast to the typical public-private partnerships, in which the public sector subsidizes private development (Squires, 1989), funds used for BID services are derived through private contributions, with the public sector providing the administrative oversight and political legitimization (Briffault, 1999). To help explain BID growth, Pack (1992) and Houstoun (1997) point to local businesses' need to directly control their investments. This need has arisen from frustration over perceived inadequacy of public services to commercial areas, especially with regard to issues of crime, disorder, and sanitation.

Credited by some as true grassroots organizations, BIDs have been used by community-development corporations to promote their service and retail sectors for the benefit of adjacent resident populations. Indeed, community-development corporations have come to rely on BIDs to facilitate these goals. With board members who often represent commercial landowners, merchants, local resident groups, and public agencies, BIDs in smaller commercial areas have become the planning agent for community development and enhancement of the adjoining neighborhood's quality of life (Sullivan, 1998). They bring additional resources to bear, both in fiscal and political terms, and use these resources to provide their own services, as well as to enhance the effectiveness of public services.

BIDs also seek to hold public service providers more accountable to a specific geography, while assisting in the coordination of public service provision. Both service provision and coordination efforts arose from models of retail security management typically associated with U.S. suburban shopping malls and office parks (Stokes, 2002). In short, BIDs have attempted to convert public streets into semipublic areas in order to increase the levels of formal and informal surveillance and ownership. To this end, BIDs offer improved defensible space (Newman,

1995) and territorial functioning (Taylor, Gottfredson, and Brower, 1984), as well as providing a place-management function that was missing from many public urban-management schemes (Felson, 1995). Thus, BIDs can be seen as providing an answer to social disorganization by fostering increased interaction between the community and public service providers in increasing the overall level of informal social control within a geographic area.

Research specific to the nature of crime and safety services in commercial areas has assisted in understanding the BID service provision (Reiss, 1985; Fisher, 1991; Fisher and Looye, 2000). The far-reaching impact of crime is reflected in surveys showing that businesses consider quality-of-life issues to be more important factors in choosing a location than they do tax rates and real-estate prices (Fisher, 1991). In one such survey, crime was one of two key determinants (along with the quality of public education) of businesses' location decisions. In fact, research indicates that fear of crime erodes the business community's willingness to invest in neighborhoods (Taub, Taylor, and Dunham, 1984; Skogan, 1990). Understanding the impact of crime in commercial development is of critical importance to urban communities, whose economic viability and social stability rest with job creation and thus with attracting commercial activity. This is especially true for small businesses and less-developed commercial areas (Porter, 1997).

The social dynamics of commercial districts vary from those of residential areas (Taylor, 2001). Collectively, businesses located in a commercial district have a strong interest in establishing and maintaining a safe place to attract customers, whereas individually, business owners have an interest in preserving safety for themselves and their employees. Commercial districts are thus often characterized by high levels of community organization through business member organizations and offer higher levels of informal and formal surveillance than do residential areas. They possess more resources to deal with local community problems. Moreover, the political importance of promoting commercial activity in urban areas often results in significant public resource allocation to promote this end.

Despite the perceived differences between commercial and residential areas of any city, community development in the larger sense and CED have become inextricable, especially in communities struggling to create employment options for underskilled residents. This is due to the importance that job-creation strategies play in promoting social stability, often through providing increased attachment to formalized employment (see W. Wilson, 1987, 1996). Community-based change may ultimately be linked to business viability, with the general decline of urban areas over the past 30 years reflecting this interactive and mutually supportive (or mutually defeating) relationship.

Perceptions of high-crime areas also may be driven by visual cues, such as abandonment and market mix (e.g., lower-end retail, pawn shops, and check-cashing operations) in a given commercial district (Taylor and Harrel, 1996). Crime or nuisance problems associated with such commercial districts can also cause spillover into adjacent residential areas (see Wikstrom, 1995). Another consequence of crime is fear and its impact on quality-of-life issues. As levels of fear rise, city residents grow weary of being afraid and trade off their preferred mode of urban living for a less convenient suburban location, further damaging the city's tax base (Skogan, 1990; Taylor, 2001; Wilson and Kelling, 1982).

Crime and youth violence, however, have seldom been of primary concern for economic-development planners, and they are often lumped in with other priorities, such as weather, recreation, and quality of education (White, Bingham, and Hill, 2003). The literature on business-location decisions also tends to focus on larger, corporate employers and the factors they consider in determining location (Gottlieb, 1997). These employers, however, have waned in their importance as job providers in urban communities. The issue of crime is of greater importance to smaller business operators. Economic-development planners in urban areas can no longer ignore crime, youth violence, and other incivilities in their attempts to foster redevelopment in downtown and neighborhood settings. The political support for additional crime-prevention efforts in commercial areas arises out of an acknowledgment that commercial areas and individual businesses serve a broader public purpose through job creation and tax revenue (Felson and Clarke, 1997; Porter, 1997).

The effects of BID services on crime prevention and public-safety outcomes are a relatively new area of research. BIDs may affect crime through their efforts to adjust the physical and social environment. The historical role of economic development and the built environment and their link to crime have been recognized for more than 30 years. Jacobs (1961) saw the lack of ownership of public space and a lack of natural surveillance as essential variables in the use and misuse of the urban environment. She suggested that the city street was the optimal social organizing unit. Newman's (1995) work on public housing suggested that poor planning of the physical environment explained crime in these developments. Research in the area of environmental criminology has attempted to link differential crime rates with land-use planning decisions; with placement of facilities, activities, and people so as to influence natural surveillance abilities; with natural access control; and with territorial reinforcement of public-space planners' and managers' responsibilities (Brantingham and Brantingham, 1991; Felson, 1995).

Some research has also been directed to the effects of BID security services. Stokes's (2002) assessment of BID security services in Philadelphia's Center City district reveals a positive role in reducing criminal opportunities and providing a place-management resource for users of this district. Hoyt's (2004) work, also in Philadelphia, examines the impact of BID security services on property crimes. Using a geographical clustering technique based on a theory of crime hot spots (Sherman, 1992), Hoyt found a statistically significant relationship between lower incidence of property crimes and the presence of BID security. Additionally, research by Brooks (2008) found that BIDs in the city of Los Angeles were associated with 6- to 10-percent reductions in official crime in an earlier time period.

Present Study

In the current study, we sought to test the citywide effects of BIDs in Los Angeles, California, on developing community-level change and reductions in youth violence. Based on prior theory and literature on the relationship among economic development, community organization, and violence, we posited that the social connections established through BIDs in Los Angeles could reduce the problem of youth violence through a stronger sense of collective community action and control, improved economic opportunities, and changes in the physical and social environment that increase cohesion and reduce disorder. This study, therefore, goes beyond urban studies of community disorder and its association with youth violence to focus on how private and public sectors can combine to restore the order of communities. The study model fits within a social disorganization framework in suggesting that a key ingredient to improvements in youth violence is community-level change driven by local residents rather than top-down, government-based community programs.

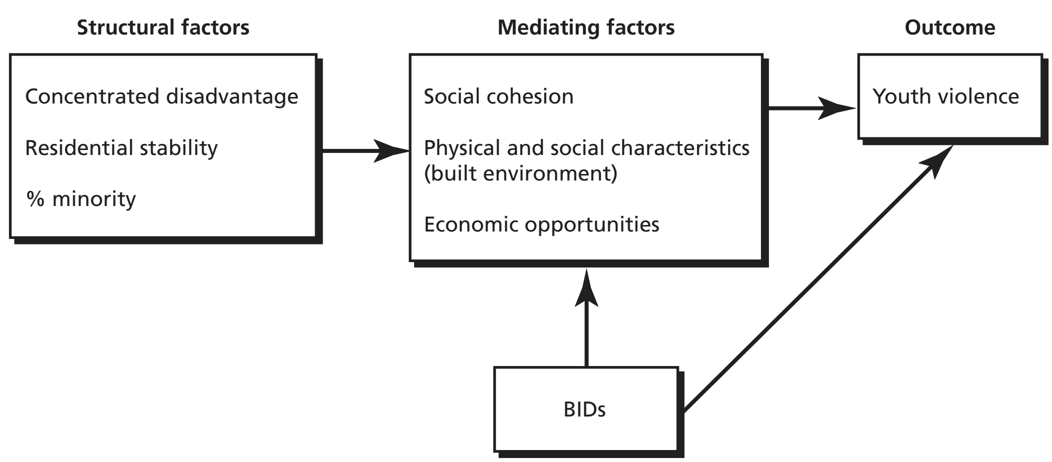
Theoretical Model

The theoretical model for the current study of BID effectiveness is displayed in Figure 1.1. This model is based on a social disorganization theory of youth violence and borrows prominently from the work of Robert Sampson and his colleagues studying Chicago neighborhoods, as well as from their predecessors (see Park, 1915; Shaw and McKay, 1942; Sampson, Raudenbush, and Earls, 1997; Sampson, Morenoff, and Raudenbush, 2005). The theoretical model assumes that variations across communities in the levels of concentrated disadvantage, residential stability, and the percentage of minorities act as structural antecedents of social disorganization (e.g., poor residential cohesion, physical and social deterioration of the physical environment, and lack of employment opportunities), which, in turn, foster an environment in which youth violence is more likely to occur. According to this theoretical perspective, BIDs can mediate the effects of these structural sources of disadvantage by increasing the likelihood of community organization and helping improve the social and physical environment of communities. Specifically, BID activities aimed at improving the physical environment and increasing economic viability and employment opportunities will, in turn, aid in increasing the level of residential social cohesion and foster an environment less conducive to crime and violence. BIDs can be seen as agents of preventive intervention that foster community-level change and thus reduce the incidence of youth violence. Note that the model we propose is parsimonious and accounts only for key factors relevant to the influence of BIDs on youth-violence prevention through community-level change; we do not presume to show all community-level predictors of youth violence. This model is intended to be consistent with findings of previous research on the social ecological correlates of youth violence and to be a useful framework for assessing the impact of BIDs.

Study Setting and Design

The theoretical model of the relationship between BIDs and youth violence was tested through an evaluation of the impact of established BIDs in Los Angeles, California, on crime and community-level attributes. Los Angeles was selected because of its racially and ethnically diverse population and its large number of BIDs in a variety of city locations. Los Angeles is

Figure 1.1
Theoretical Model of the Relationship Between BIDs and Youth Violence



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a major destination for immigrants, and about 40 percent of the population is foreign born. Immigration to Los Angeles has dramatically changed the demographic makeup of inner-city neighborhoods, yet neighborhood patterns still reflect the racial, ethnic, and economic segregation found in large Midwest and East Coast cities (Massey and Denton, 1993). Los Angeles does not, however, have the traditional central urban core that those other cities have, and it is less dense in population than the older industrial cities of the East Coast (e.g., Baltimore) and Midwest (e.g., Chicago). Increasingly, children in the United States are growing up in newer western and southwestern cities (e.g., Dallas), whose physical layout, history, and residential growth patterns are more similar to those seen in Los Angeles than to older industrial cities in the East and Midwest. These older industrial cities, however, have been the traditional focus of neighborhood-based studies of crime and violence (Sampson, Morenoff, and Raudenbush, 2005; Taylor, 2001). Los Angeles, as the largest and most complex of the newer-growth cities in the United States, provides an opportunity for understanding the contemporary social ecology of youth violence and the impact of BIDs in fostering community-level change.

The L.A. BID program started in 1994 with the establishment of a single, merchant-based district. At the start of this study, there were a total of 30 established BIDs in Los Angeles, located in 14 of the city's 15 council districts. A visual depiction of the size, locations, and census-tract neighborhoods adjoining these BIDs is displayed in Figure 1.2.[1]

A basic description of the demographic and income characteristics of household residents in census-tract neighborhoods exposed to the 30 BIDs in Los Angeles is shown in Table 1.1. From a review of Table 1.1, it is clear that average household features of neighborhoods exposed to BIDs vary greatly in their demographic and income characteristics. For example, six BIDs located near the downtown of Los Angeles (Downtown Center, Downtown Industrial, Fashion District, Figueroa Corridor, Historic Core, Toy District) have median household incomes in the 2000 census that range from $8,125 to $20,602, far below the average median value of $41,525 for the entire city. The average unemployment rate is also far below the city average in these districts. In contrast, seven BIDs (Chatsworth, Encino, Granada Hills, Northridge, Sherman Oaks, Studio City, Tarzana) out of the 10 located in the Northwest section of Los Angeles (San Fernando Valley) have higher-than-average median household incomes (ranging from $43,679 to $72,527), a substantially lower percentage of Hispanic households (ranging from 6.3 percent to 23.8 percent) than the city average (46.6 percent), and a lower percentage of families living in poverty. In contrast, BIDs located in South Los Angeles (San Pedro and Wilmington) are adjoined by neighborhoods with higher percentages of Hispanic households than the city average. These South L.A. BIDs also have median household incomes, family poverty rates, and unemployment rates that reflect levels of concentrated poverty substantially higher than the L.A. city average. The four BIDs situated to the northeast of the downtown section of Los Angeles (L.A. Chinatown, Greater Lincoln Heights, Highland Park, and Lincoln Industrial Park) also have lower median household incomes than the L.A. city average and a higher percentage of families living in poverty. Clearly, the location of BIDs in Los Angeles is both geographically and demographically diverse, reflecting a presence in areas of both relative poverty and relative affluence.

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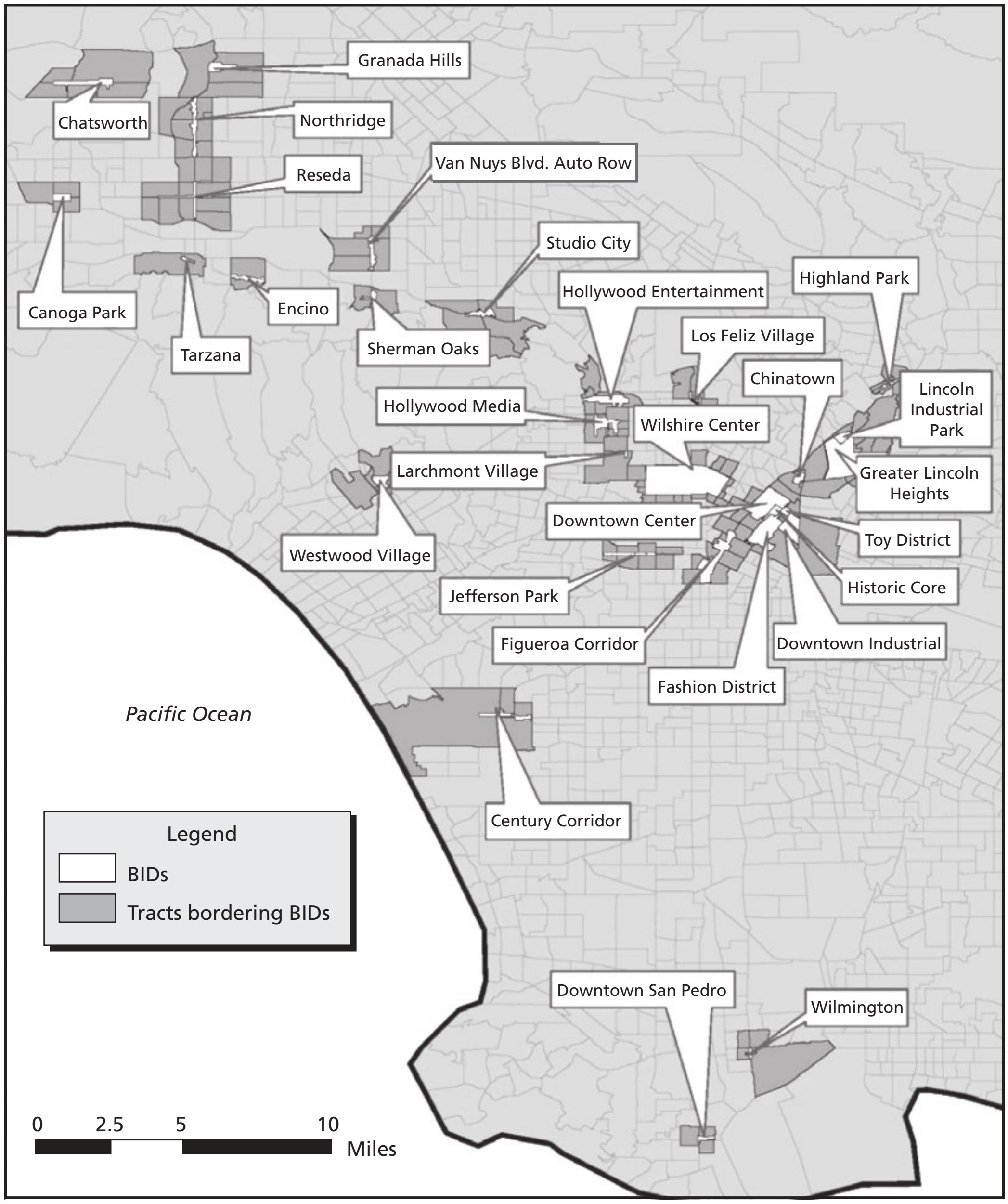
[1] In December 2006, a shape file containing the 30 established BIDS was obtained from the City of Los Angeles Office of the City Clerk overlaid with the shape files for the census tracts in the city of Los Angeles; see U.S. Census Bureau (2005).

Figure 1.2
Location of BIDs and Adjoining Census Tracts in Los Angeles



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The geographic diversity of BIDs in Los Angeles and the variation in the demographic and income profile of households in their surrounding neighborhoods allowed us to study their impact on community-level change and youth violence across a diverse set of neighborhoods. BIDs in Los Angeles participate in a variety of CED and revitalization efforts. For example, the Figueroa Corridor BID developed in response to economic decline and was formed by business property owners who focused their efforts on improving community safety by employing individuals who patrol the community and assist in keeping order, as well as crews who clean the streets (Holter, 2002).

Table 1.1
Characteristics of Neighborhood Census Tracts Associated with BID Locations

BID Location	Hispanic (%)	Median Age (years)	Unemployed (%)	Median Household Income ($)	Families in Poverty (%)	Female-Headed Households (%)[a]
Canoga Park	62.1	29.1	8.6	37,643	7.6	12.3
Century Corridor	28.2	30.5	7.4	38,420	10.6	23.3
Chatsworth	14.4	39.0	4.4	68,854	4.1	7.7
L.A. Chinatown	25.8	39.2	14.2	16,156	27.7	8.6
Downtown Center	49.8	38.0	9.7	17,223	14.8	10.5
Downtown Industrial	51.2	36.3	36.9	15,833	11.8	19.7
Encino	6.3	44.4	4.5	54,421	5.5	4.8
Fashion District	58.4	28.7	11.3	20,602	11.5	9.7
Figueroa Corridor	66.5	24.4	12.3	16,895	13.6	16.9
Granada Hills	16.1	37.4	5.7	55,722	4.0	8.6
Greater Lincoln Heights	63.7	29.7	8.9	30,855	40.9	11.1
Highland Park	78.2	27.7	9.9	31,775	13.5	18.3
Historic Core	21.2	49.2	19.5	8,125	31.3	0.0
Hollywood Entertainment	34.8	31.9	11.4	25,359	15.1	17.9
Hollywood Media	47.0	32.0	12.1	29,164	13.2	12.0
Jefferson Park	54.0	29.2	12.5	27,346	13.3	18.8
Larchmont Village	5.8	41.5	4.6	96,691	1.8	5.7
Lincoln Heights Industrial	72.4	28.3	8.9	23,799	19.9	13.2
Los Feliz Village	20.0	36.1	7.5	35,228	17.6	7.4
Northridge	23.8	33.8	6.8	43,679	5.5	10.3
Reseda	44.8	32.4	8.1	40,161	7.6	10.4
San Pedro	67.3	29.3	15.8	20,351	20.3	23.1
Sherman Oaks	9.5	36.1	6.9	46,658	2.4	10.9
Studio City	5.5	41.5	7.1	72,527	2.1	6.7
Tarzana	14.2	38.7	4.5	58,620	3.8	6.1
Toy District	19.2	45.1	52.2	10,959	10.9	19.1

Table 1.1—Continued

BID Location	Hispanic (%)	Median Age (years)	Unemployed (%)	Median Household Income ($)	Families in Poverty (%)	Female-Headed Households (%)[a]
Van Nuys Blvd. Auto Row	44.8	32.1	8.6	36,491	7.1	14.4
Westwood Village	8.7	26.5	16.2	39,072	9.9	2.8
Wilmington	89.6	25.6	13.2	25,339	12.6	12.7
Wilshire Center	57.7	30.0	11.2	22,479	12.8	14.8
City average	46.6	32.2	9.8	41,525	11.1	12.9

NOTE: Weighted by residential population to discount the effects of a small base population in some census tracts associated with BIDs.

[a] All households used as the denominator.

The process of BID creation in Los Angeles is similar to that in other cities (see Briffault, 1999) in that a vote of the majority of property owners and merchants, weighted by level of property assessment, is required for an initial five-year service and budget plan. After five years, the BID has to be reauthorized by another vote of property owners to continue its operations. The L.A. city clerk's Administrative Services Division manages the city's BID program. The city has, at times, offered financial assistance for BID formation planning. In the planning phase, the city requires the use of outside consultants for the initial district organization. Consultants are also required to develop a membership database and design an assessment formula while incorporating a nonprofit organization to manage the day-to-day operations of the BID (City of Los Angeles Office of the City Clerk, undated). The city has embedded some accountability measures into its management of BIDs by requiring a series of public meetings leading up to an enabling vote by the city council. After BID creation, the city levies an assessment on the BID's behalf and charges the BID a fee for the transaction. BID management is required to provide the city with financial reports that track each BID's use of assessment funds. The city can also audit the BID's financial condition and is empowered to cease BID operations if compliance with the proposed service plan is not followed or financial irregularities are discovered (City of Los Angeles Office of the City Clerk, 2008). The L.A. city clerk's office also acts as liaison to the public in the dissemination of BID programs, services, plans, and budgets.

We relied on multiple sources of data to test our theoretical model of BID effectiveness. First, to develop a profile of the variation in operations of established BIDs in Los Angeles, we conducted in-depth interviews with BID officials, examined BID budget data, and conducted systematic social observations of BID areas. Second, to examine BIDs' effect on community-level processes linked to youth violence, we conducted an interview-based household survey of 737 randomly selected households (one adult and one 14- to 17-year-old youth per household) in census tracts that contained BIDs (n = 147) and a matched sample of census tracts without BIDs (n = 85). Third, to examine the changes in violence before and after the adoption of BIDs, we obtained geocoded surveillance data (official reported crimes to the Los Angeles Police Department [LAPD]) and analyzed the changes in violent-crime incidence associated with the adoption of BIDs. Relying on these sources of qualitative and quantitative data, as well as on a multilevel modeling of administrative (police) and primary (household) data, we assessed the extent to which BIDs were associated with improving the social and economic fabric of communities and reducing the incidence of youth violence.

Structure of This Report

The balance of this report is organized around the research aims presented throughout this chapter. Chapter Two provides a descriptive analysis of the BID budget data and in-depth interviews with BID officials to catalog the differences in the priorities and functions of BIDs in Los Angeles. Chapter Three presents systematic observations of BID areas that focus on examining the variation among BIDs and their relationship with aspects of the social and physical environment. Chapter Four gives results from a multilevel analysis of interview data (youth and caregivers) in selected households in BID and comparison-group neighborhoods to examine the effects of BIDs on community-level attributes and youth violence. Chapter Five presents an analysis of the changes in officially reported crimes associated with the implementation of BIDs in neighborhoods. Chapter Six provides a summary and conclusion from these baseline data and analyses as they relate to the efforts of BIDs and creating sustainable community-level change.

CHAPTER TWO

Budgetary and Organizational Characteristics of BIDs

One of the challenges of examining the impact of BIDs on community-level change and youth violence is that BIDs are diverse organizations with varied methods and aims. To better understand how BIDs might affect youth-violence outcomes, this study collected data on BID organization types and budgets from the L.A. city clerk's office and interviewed BID directors. In this chapter, we use these data to describe what BIDs spend their base budget and operations money on and how they are organized. We also describe the demographic and socioeconomic characteristics of communities exposed to BIDs and examine whether they differ in spending priorities by community demographic, income, or housing characteristics.

BID Budgets

Within each BID, services, activities, and programs are paid for through special assessments charged to all members (merchants or property owners) within the district. Either the city or the county collects assessment money, with the proviso that BID activities equitably distribute the benefits to the costs that members incur. Because the assessment funds collected in a given district cannot legally be spent outside of that BID, the city creates an account for each BID, with funds periodically released to support operations.

BID special assessments are calculated in one of two ways. In the first, the BID is funded through fees levied on property owners, who pay an additional sum as part of their tax bill. The amount of the fee is based on the amount of street frontage each property owner has within BID boundaries. The county assessor's office collects the assessment and delivers it to the BID through the city-maintained account. A second type of BID is funded through fees levied on merchants, with the amount based on business-license fees that the city collects.

The following is a presentation of budget data for 30 BIDs in the city of Los Angeles, California. The L.A. city clerk's office supplied budget data via copies of the BIDs' annual reports. These reports provide total and less-aggregated budget data for each BID for several years. Data were not available or complete for all years for all BIDs, so the most recent available year was used for each BID, and data were converted to 2005 dollars.

The following analysis of BID budget data includes descriptions of segments of each BID's individual budget, as well as aggregate totals for all budgets. This chapter does not include a line-item analysis of each budget. The BIDs reported their individual budgets in a nonuniform manner, so despite many similarities in heading titles, there is no codified manner by which to compare the specific spending patterns across BIDs. This analysis, therefore, should be viewed only as a notional representation of the spending patterns within each BID. Several

BIDs report their spending on public safety and beautification projects from income instead of from their base budget. For these agencies, we have made some modifications in the description of their spending, but it is likely that these BIDs spend more resources on community-enhancement activities than is reflected in their base or expenditure budgets. The purpose of this analysis is to present an indication of the types of uses for the BID budget.

Table 2.1 shows the total base budget for each BID, in thousands of 2005 dollars, as well as the most recent year for which data were available. The total base budget excludes extra income that a number of BID areas generate from hosting events or special service activities for their property owners or merchants. The total sum of all 30 L.A. area BIDs' annual base budgets was $22.1 million, an average of $736,670 per BID reported, excluding extra income generated from fund-raising activities. Downtown Center had the largest budget of any BID ($4.7 million), followed by the Fashion District ($3.4 million) and Hollywood Entertainment ($2.3 million). Chatsworth, Larchmont Village, Lincoln Industrial Park, Reseda, San Pedro, Tarzana, and Wilmington all had budgets less than $100,000. The differences in budget size are a reflection of the geographic size in terms of square footage of commercial street frontage space, the average assessed property values, or the density of merchants that are charged business-licensing fees. No data were reported for Jefferson Park.

Table 2.1
Total Budget Data for Business Improvement Districts

BID	Year	Budget (thousands of 2005 dollars)	Square Miles
Canoga Park	2004	234	0.126
Century Corridor	2004	713	0.179
Chatsworth	2004	98	0.029
L.A. Chinatown	2005	1,227	0.122
Downtown Center	2005	4,674	0.680
Downtown Industrial	2004	1,708	0.368
Encino	2004	472	0.117
Fashion District	2004	3,414	0.619
Figueroa Corridor	2004	963	0.559
Granada Hills	2003	133	0.180
Greater Lincoln Heights	1999	139	1.625
Highland Park	2004	291	0.082
Historic Core	2004	147	0.104
Hollywood Entertainment	2004	2,328	0.311
Hollywood Media	2004	1,320	0.272
Jefferson Park	—	—	0.093
Larchmont Village	2005	83	0.014
Lincoln Industrial Park	2005	62	0.115

Table 2.1—Continued

BID	Year	Budget (thousands of 2005 dollars)	Square Miles
Los Feliz Village	2005	103	0.075
Northridge	2004	395	0.231
Reseda	2003	55	0.237
San Pedro	1999	57	0.060
Sherman Oaks	2004	221	0.068
Studio City	2005	328	0.139
Tarzana	2004	57	0.036
Toy District	2004	557	0.062
Van Nuys Blvd. Auto Row	2003	331	0.147
Westwood Village	2001	1,418	0.157
Wilmington	2001	55	0.044
Wilshire Center	2004	519	2.131
Total		22,100	9.239

SOURCE: Data compiled from BID annual reports provided by the Office of the City Clerk.

External Expenditures

We classify BID external expenditures into one of five categories: public safety, beautification, marketing, administration, and other. Table 2.2 shows the percentage of expenditures for each BID in each of these categories.

Table 2.2
External Expenditure Data for Business Improvement Districts' Base Budgets (%)

BID	Public Safety	Beautification	Marketing	Administration	Other
Canoga Park	22	33	18	20	7
Century Corridor	43	0	14	38	4
Chatsworth	15	41	13	16	16
L.A. Chinatown	22	28	28	15	2
Downtown Center[a]	24	10	28	11	27
Downtown Industrial	57	24	5	15	0
Encino	0	77	8	12	4
Fashion District	30	38	9	12	5
Figueroa Corridor	0	78	7	13	2

Table 2.2—Continued

BID	Public Safety	Beautification	Marketing	Administration	Other
Granada Hills	0	8	10	18	64
Greater Lincoln Heights	24	3	20	41	8
Highland Park	0	0	5	90	5
Historic Core[a]	0	68	4	34	0
Hollywood Entertainment	49	27	5	14	4
Hollywood Media	60	20	0	13	2
Jefferson Park	—	—	—	—	—
Larchmont Village	26	63	0	11	0
Lincoln Industrial Park	0	79	0	21	0
Los Feliz Village	0	34	25	2	39
Northridge	2	13	35	22	3
Reseda	79	2	0	18	0
San Pedro	0	80	20	0	0
Sherman Oaks	0	41	35	23	1
Studio City	22	46	15	13	0
Tarzana	10	21	23	43	0
Toy District[a]	10	65	5	20	10
Van Nuys Blvd. Auto Row	0	14	65	15	5
Westwood Village	7	32	10	20	13
Wilmington	0	74	11	5	10
Wilshire Center	43	25	20	12	0
Average	23	35	15	18	5

SOURCE: Data compiled from BID annual reports provided by the Office of the City Clerk.

[a] BID that funded a percentage of its priorities using income rather than the base budget. As a result, this BID may spend more on public safety and other priorities than would appear from the table.

Public Safety

BIDs spent a total of $5.1 million on public safety and security, which accounted for 23 percent of all expenditures. *Public safety and security* includes hiring nonpolice security firms, subsidizing an LAPD satellite station, and other crime-prevention methods, such as patrolling, dispatching, and identifying problem areas within a BID. In terms of actual dollars (data not shown), Hollywood Entertainment ($1.1 million) and Fashion District ($1.0 million) spent the most money on public safety and security, while each of three other BIDs—Century Corridor, Downtown Industrial, and Hollywood Media—spent at least $300,000 in the last reported budget year. Ten BIDs reported spending no money on public safety or security.

Reseda spent the largest share of its budget (79 percent) on public safety and security, while Century Corridor, Downtown Industrial, Hollywood Entertainment, Hollywood Media, and Wilshire Center spent at least 40 percent of their budgets on public safety and security. Northridge, Tarzana, and Westwood Village spent 10 percent or less on public safety and security.

Beautification

Beautification includes trash and litter removal, maintaining property (such as sidewalks and benches), trimming branches from overhanging trees, and removing graffiti. Landscape, general maintenance, and beautification make up the largest category of expenditure across all BIDs. Altogether, the 30 BIDs spent $7.8 million on beautification, 35 percent of all expenditures.

Downtown Center spent $2.5 million on beautification, the most by any BID, followed by Fashion District ($1.3 million). Four other BIDs—Downtown Industrial, Figueroa Corridor, Hollywood Entertainment, and Westwood Village—each spent at least $400,000 on beautification. Reseda spent the least of any BID, $1,000, while Greater Lincoln Heights spent only $4,000 on beautification. Two BIDs—Century Corridor and Highland Park—did not report spending any money out of their base budgets on beautification.

As a share of its overall budget, San Pedro spent the most of any BID on beautification, 80 percent, followed closely by Lincoln Industrial Park (79 percent), Figueroa Corridor (78 percent), Encino (77 percent), and Wilmington (74 percent). Reseda and Greater Lincoln Heights spent 2 and 3 percent of their budgets, respectively, on beautification.

Operations

Another way of classifying the spending for BIDs can be seen by describing their overall operations expenditures from their base budgets. These expenditures are separate from those generated from income earned through fund-raising activities. *Operations expenditures* include resources used to pay for management, administration, and other costs with operating a BID and paying for its services. Overall, L.A. BIDs spent $8.4 million on operations expenditures. This amounts to 38 percent of the overall annual BID spending.

As Table 2.3 indicates, Downtown Center spent the most of any BID on external expenditures ($2.2 million), while Fashion District spent $890,000. Westwood Village (now defunct) spent $609,000 on operations expenditures. Highland Park and Historic Core both spent their entire budgets on external expenditures, and Toy District spent 92 percent. Hollywood Media, Larchmont Village, and Reseda spent less than 20 percent of their budgets on operations expenditures.

Marketing

Marketing includes public-relations expenditures, promotions, advertising, market research, logo branding, newsletters, and Web design. All together, the 30 BIDs spent a total of $3.4 million on marketing, 15 percent of their annual budgets.

Table 2.3
Operations Expenditure Data for Business Improvement Districts

	Operations		Marketing		Administration		Other	
BID	Amount (thousands of 2005 dollars)	Percent	Amount (thousands of 2005 dollars)	Percent	Amount (thousands of 2005 dollars)	Percent	Amount (thousands of 2005 dollars)	Percent
Canoga Park	105	45	41	18	47	20	17	7
Century Corridor	403	57	103	14	274	38	26	4
Chatsworth	44	44	13	13	16	16	16	16
L.A. Chinatown	545	44	340	28	182	15	22	2
Downtown Center	2,208	47	1,390	30	645	14	173	4
Downtown Industrial	339	20	83	5	256	15	0	0
Encino	110	23	37	8	56	12	17	4
Fashion District	890	26	307	9	424	12	159	5
Figueroa Corridor	212	22	68	7	128	13	16	2
Granada Hills	122	92	14	10	23	18	85	64
Greater Lincoln Heights	97	69	28	20	57	41	12	8
Highland Park	291	100	15	5	262	90	15	5
Historic Core	147	100	0	0	147	100	0	0
Hollywood Entertainment	537	23	117	5	327	14	93	4
Hollywood Media	198	15	0	0	166	13	32	2
Jefferson Park	—	—	—	—	—	—	—	—

Table 2.3—Continued

BID	Operations: Amount (thousands of 2005 dollars)	Operations: Percent	Marketing: Amount (thousands of 2005 dollars)	Marketing: Percent	Administration: Amount (thousands of 2005 dollars)	Administration: Percent	Other: Amount (thousands of 2005 dollars)	Other: Percent
Larchmont Village	9	11	0	0	9	11	0	0
Lincoln Industrial Park	13	21	0	0	13	21	0	0
Los Feliz Village	68	66	26	25	2	2	40	39
Northridge	235	60	138	35	87	22	10	3
Reseda	10	18	0	0	10	18	0	0
San Pedro	12	20	12	20	0	0	0	0
Sherman Oaks	131	59	77	35	52	23	3	1
Studio City	90	27	49	15	41	13	0	0
Tarzana	38	66	13	23	25	43	0	0
Toy District	512	92	30	5	425	76	57	10
Van Nuys Blvd. Auto Row	283	86	215	65	50	15	18	5
Westwood Village	609	43	137	10	287	20	185	13
Wilmington	14	26	6	11	3	5	6	10
Wilshire Center	167	32	102	20	65	12	0	0
Total	8,438	38	3,360	15	4,076	18	1,001	5

SOURCE: Data compiled from BID annual reports provided by the Office of the City Clerk.

Downtown Center spent the most on marketing of any BID, $1.4 million, followed by L.A. Chinatown ($340,000) and Fashion District ($307,000). Five BIDs—Larchmont Village, Lincoln Industrial Park, Historic Core, Hollywood Media, and Reseda—did not spend any money on marketing, and Wilmington spent only $6,000.

Van Nuys Blvd. Auto Row spent the largest share on marketing of any BID, 65 percent. Northridge and Sherman Oaks each spent 35 percent on marketing. Seven BIDs spent less than 10 percent of their annual budgets on marketing: Fashion District (9 percent), Encino (8 percent), Figueroa Corridor (7 percent), Downtown Industrial (5 percent), Highland Park (5 percent), Hollywood Entertainment (5 percent), and Toy District (5 percent).

Administration

Administrative costs include expenses related to BID staff and management, insurance, bookkeeping, office space, and city administrative fees. All together, the BIDs spent $4.1 million, 18 percent of their combined annual budgets, on administrative costs. Downtown Center spent the most on administration of any BID ($645,000), followed by Toy District ($425, 000) and Fashion District ($424,000). Five BIDs spent $10,000 or less on administrative costs: Reseda ($10,000), Larchmont Village ($9,000), Wilmington ($3,000), Los Feliz Village ($2,000), and San Pedro ($0).

Historic Core spent the largest share of its operations budget on administration of any BID, 100 percent. Highland Park spent 90 percent of its operations budget on administration, and Toy District spent 76 percent. Three BIDs spent less than 10 percent of their annual operations budgets on marketing: Wilmington (5 percent), Los Feliz Village (2 percent), and San Pedro (0 percent).

Other Expenses

Five percent, or $1.0 million of the sum of the BIDs' budget, was spent on additional items, termed *other expenses*. These expenses include a wide variety of one-time costs, special projects, special events, professional fees, homelessness amelioration, and reserve funds. Westwood Village spent the most on other expenses of any BID, $185,000, followed by Downtown Center ($173,000) and Fashion District ($159,000). Nine BIDs—Downtown Industrial, Historic Core, Larchmont Village, Lincoln Industrial Park, Reseda, San Pedro, Studio City, Tarzana, and Wilshire Center—reported no expenditures in the "other expenses" category of their budgets.

Granada Hills spent the largest share on other expenses of any BID, 64 percent of its budget, while Los Feliz Village spent 39 percent of its budget on other expenses. Twenty-three BIDs spent less than 10 percent of their budgets on other expenses.

Capital Improvements

Capital improvements undertaken by BIDs included new programs, community improvements, grant expenditures, scholarships, and contingency fees. Capital improvements accounted for $786,000, 4 percent of the total budget, for all BIDs combined. Table 2.4 shows the amounts that 11 BIDs invested in capital improvements, along with the corresponding percentage of their total budget, in thousands of 2005 dollars. Westwood Village saw the largest expenditure for capital improvements, $264,000, followed by Fashion District ($212,000) and Northridge

Table 2.4
Expenditure Data for Capital Improvements for BIDs That Invested in Capital Improvements

BID	Amount (thousands of 2005 dollars)	Percent
L.A. Chinatown	61	5
Fashion District	212	6
Greater Lincoln Heights	5	3
Hollywood Entertainment	15	1
Hollywood Media	66	5
Northridge	101	25
Reseda	0	1
Studio City	15	5
Tarzana	1	2
Toy District	45	8
Westwood Village	264	19
Total	786	4

SOURCE: Data compiled from BID annual reports provided by the Office of the City Clerk.

($101,000). Capital improvements represented 25 percent of Northridge's total budget and 19 percent of Westwood Village's total budget.

From a review of the differences in external expenditures made by L.A. BIDs, it is clear that their operational orientations differ greatly. For the larger BIDs, the focus is placed primarily on beautification or public-safety provisions, while smaller BIDs' expenditures are directed mainly to marketing efforts and promotion. Now that we have some sense of the diversity in BID spending priorities, we next examine how BIDs organize their priorities and interact with governmental entities.

BID Organizational Structure, Concerns, and Interactions with the Local Government

To gain deeper insight into the variation in BID organizational structures and operations, we also interviewed BID directors and observed participants of eight L.A. BID Consortium meetings. L.A. BID Consortium meetings are held bimonthly and are a forum for BID directors to interact with each other and discuss their concerns with officials representing different city service, planning, and elected offices (e.g., City of L.A. Department of Public Works, L.A. Department of City Planning, LAPD, City of L.A. Department of Recreation and Parks; Office of the City Clerk, Office of the City Attorney, Mayor's Office). The survey of BID directors collected information on how each BID organization works with its members, local city agencies, and its surrounding communities.

Participation in the survey was completely voluntary, and participants could withdraw their consent to continue at any time. During the interview, no sensitive or personal questions were asked of the participants. To ensure that the questions were meaningful, one of the local BID directors was enlisted to provide feedback on a draft survey during the development phase. Based on the comments provided from this individual, the research team felt confident that the questions were appropriate and meaningful in both content and structure.

On several occasions, the RAND principal investigator attended BID Consortium meetings to discuss the details of the BID study. During these presentations, BID members were told that they would be asked to participate in a phone interview regarding their specific BIDs. In October 2006, an email was also sent out to all the members on the BID Consortium email list to let them know that the interview process was under way.

The RAND research team received contact information for 25 L.A. area BID associations from the city clerk's office during the fall of 2006.[1] Using the list provided as well as the emails obtained through the BID Consortium, a member of the research team attempted to contact a primary representative from each of the BIDs to conduct the phone interview. Over a seven-week period (between October and December 2006), a maximum of five attempts were made to contact each BID. As of December 2006, a total of 19 BIDs had participated in the interview. There were no official refusals, although six of the BIDs did not respond to repeated requests and were unavailable. Fourteen of the interviews were completed by phone, while five interviews were self-administered at the BIDs and faxed to RAND for inclusion in the study.

BID Organizational Structure and Activities

Table 2.5 indicates the job titles of each of the interview participants. In most instances (53 percent), interviews were conducted with the current BID directors. Depending on the structure of the BIDs, other key individuals were also interviewed (e.g., administrator, coordinator, president, founding chair, operations manager, member of the L.A. Area Chamber of

Table 2.5
Interview Participant Job Titles

	Participants	
Job Title	Number	Percentage
Administrator or coordinator	2	10.5
Director	10	52.6
President	3	15.8
Other[a]	4	21.1
Total	19	

[a] Other job titles include operations managers, a founding chair, and a member of the Chamber of Commerce.

1 We did not have contact information for Greater Lincoln Heights, Jefferson Park, Reseda, Van Nuys Blvd. Auto Row, or Westwood Village. We learned that Jefferson Park and Westwood Village are no longer functioning BIDs, despite being active BIDs in 2002–2003.

Commerce). Regardless of their specific job titles, all interview participants were chosen because they are key individuals within their BID organizations.

In the greater L.A. area, most of the operating BIDs were considered to be property-owner BIDs (76 percent) versus merchant-based BIDs (24 percent). Consistent with this, Table 2.6 indicates that the majority of interview participants (68 percent) were associated with property-owner BIDs. Additionally, six of the property-owner BIDs indicated that they had both property owners and merchants within their BID areas. On average, each property-owner BID served 311 property owners and 484 merchants. Merchant-based BIDs did not report serving any property owners but estimated an average of 311 merchant members. Overall, the number of members served by each BID ranged from a minimum of 45 property owners to one that served 4,400 merchants and 1,000 property owners.

Participants were asked to indicate how involved their BID Board of Directors was in various BID activities. Table 2.7 indicates that more than half of the participants felt that their BID Board of Directors was very involved in community development and revitalization, physical aesthetics (e.g., litter cleanup, sanitation, graffiti removal), public safety, and working with neighborhood councils and community groups. Participants revealed that boards of directors were less involved with such activities as job creation, business creation and retention, and infrastructure programs (e.g., streetscapes, lighting, landscaping, public art) than with other activities.

Table 2.6
Types of Participating BIDs

	Participants			
Type	Number	Percentage	Mean No. of Property Owners	Mean No. of Merchants
Merchant-based	6	31.6	0	311
Property owner–based	13	68.4	311	484
Total	19			

Table 2.7
BID Boards of Directors and BID Activities

	Very Involved		Neither Involved nor Uninvolved		Very Uninvolved	
Activity	No.	%	No.	%	No.	%
Community development and revitalization	10	52.6	7	36.8	2	10.5
Job creation	0	0.0	11	57.9	8	42.1
Business creation and retention	5	26.3	10	52.6	4	21.1
Physical aesthetics	10	52.6	8	42.1	1	5.3
Infrastructure programs	5	26.3	13	68.4	1	5.3
Public safety	12	63.2	7	36.8	0	0.0
Working with community groups	11	57.9	5	26.3	3	15.8

NOTE: $n = 19$.

BID Contacts with City Agencies

In an effort to assess how BID offices promote contact with city agencies (e.g., Office of the City Attorney and the Department of Public Works), participants were asked whether they distributed contact information for city agencies, kept track of complaints regarding city agencies, and whether they had a systematic way to follow up on reported issues or problems with city agencies. Table 2.8 indicates that only 37 percent of the BIDs distributed contact information for the various city agencies to their members. Although only 26 percent of the BIDs actually tracked complaints made by their BID members regarding city agencies, more than half of the BIDs (58 percent) indicated that they had a systematic way to follow up on complaints made by their members regarding the various agencies.

Participants were asked to gauge how likely BID members (i.e., merchants and property owners) were to contact local city agencies (e.g., police, public works, city council members) if specific situations occurred within their BID. Table 2.9 indicates that participants believed that BID members were likely to contact city agencies if there was gang activity (67 percent), if thefts from automobiles were an increasing problem in the BID (56 percent), and if homeless and runaway youth were congregating in the BID (50 percent). Half of the interview participants felt that it was unlikely or very unlikely that BID members would contact city agencies directly if trash was piling up in back alleyways.

Table 2.8
Promotion of City Agencies

	Yes		No	
Function	**No.**	**%**	**No.**	**%**
Distribute contact information	7	36.8	12	63.2
Track complaints	5	26.3	14	73.7
Follow up on complaints	11	57.9	8	42.1

NOTE: n = 19.

Table 2.9
BID Members' Probability of Contacting City Agencies Regarding Certain Problems

	Likely or Very Likely		Neither Likely nor Unlikely		Unlikely or Very Unlikely	
Problem	**No.**	**%**	**No.**	**%**	**No.**	**%**
Gang activity	12	66.7	0	0.0	6	33.3
Graffiti	5	27.8	7	38.9	6	33.3
Panhandling	8	44.4	4	22.2	6	33.3
Homeless and runaway youth	9	50.0	5	27.8	4	22.2
Thefts from automobiles	10	55.6	3	16.7	5	27.8
Trash	5	27.8	4	22.2	9	50.0

Considering that various city agencies work directly with the local area BIDs, participants were asked how often they contacted representatives at the various city agencies. Table 2.10 reveals that more than 60 percent of the BIDs contacted the city council and LAPD at least once per week. Other agencies (Mayor's Office, Office of the City Attorney, Office of the City Clerk, and Department of Public Works) were typically contacted once or twice per month. Participants stated that they had fewer contacts with the Office of the City Attorney and the Mayor's Office than with the other agencies.

Table 2.11 displays how responsive the participants felt that the various city agencies have been to addressing their BID concerns. The majority of participants indicated that the city council, the city clerk's office, and the LAPD were very responsive to their needs (72 percent, 74 percent, and 90 percent, respectively). Slightly less than one-third of the participants revealed that the city attorney's office was somewhat or very unresponsive to their specific BID needs.

Table 2.10
Frequency of City Agency Contacts

	Once or More per Week		Once or Twice per Month		Quarterly		Never	
Agency	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
City council	12	63.2	7	36.8	0	0.0	0	0.0
Mayor's office	0	0.0	14	77.8	2	11.1	2	11.1
City attorney's office	0	0.0	11	61.1	5	27.8	2	11.1
City clerk's office	4	21.1	13	68.4	2	10.5	0	0.0
Public works	7	36.8	10	52.6	2	10.5	0	0.0
LAPD	12	66.7	4	22.2	2	11.1	0	0.0

Table 2.11
Responsiveness of City Agency Contacts

	Very Responsive		Somewhat Responsive		Somewhat Unresponsive		Very Unresponsive	
Agency	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
City council	13	72.2	3	16.7	0	0.0	2	16.7
Mayor's office	3	18.8	10	62.5	2	12.5	1	6.3
City attorney's office	6	37.5	5	31.3	4	25.0	1	6.3
City clerk's office	14	73.7	5	26.3	0	0.0	0	0.0
Public works	8	42.1	8	42.1	1	5.3	2	10.5
LAPD	17	89.5	2	10.5	0	0.0	0	0.0

BID Services and Concerns

As indicated in the section on budget priorities, BIDs can be active in directly shaping the physical environment in which they reside. In addition to their advocacy or mobilization efforts with city and county agencies, BIDs also directly address concerns of their constituents. Participants were asked to indicate whether their BIDs had paid for specific services or improvements to their BID area, either directly or via contracted or grant-awarded services. Table 2.12 indicates that more than half of the BIDs paid for private security (68 percent) and streetscape improvements (53 percent). However, most of the BIDs did not fund neighborhood ambassadors, enhanced street lighting, video surveillance equipment, or sidewalk improvements.

To gauge the condition of the BID areas, BID participants were asked to indicate whether certain conditions were considered to be a big problem, somewhat a problem, or not a problem within their BIDs. Table 2.13 reveals how much of a problem the participants considered various conditions and situations to be within their BIDs. Slightly more than one-third of participants indicated that litter or trash in the streets was a big problem in their BIDs. Several conditions or situations were considered to be somewhat a problem for most of the BIDs. These include graffiti, poorly maintained property, drinking in public, homeless people or street panhandlers, conditions of the sidewalks, access to parking, and street lighting. Vacant housing or storefronts, abandoned cars, selling or using drugs, loitering teenagers, or people fighting were less likely to be considered problems within a BID.

A primary goal of most BID organizations is to improve commercial activity within their BID areas. Table 2.14 indicates that 95 percent of the BID representatives interviewed believed that commercial activity had improved within their areas in the past year. The majority of the BID representatives (79 percent) also suggested that the BIDs were very effective at improving commercial activity in their areas. The relatively high response rate to these questions is not surprising, given that the BID director or administrator would expect that his or her program is effective.

Interview participants were asked what could be done to improve the overall BID program. A majority of respondents felt that the BID creation and renewal processes were too time-consuming and difficult to maneuver and should be streamlined. Respondents indicated that it was hard to meet all of the renewal requirements and to make changes to the size and budget of the local BID. Individuals did not provide detailed solutions to this problem, but

Table 2.12
BID-Funded Services and Improvements

	Yes (*n* = 19)	
Service or Improvement	**No.**	**%**
Private security	13	68.4
Neighborhood ambassadors	2	10.5
Enhanced street lighting	5	27.8
Video surveillance equipment	5	28.5
Sidewalk improvements	2	10.5
Streetscape improvements	10	52.6

Table 2.13
BID Concerns

	A Big Problem		Somewhat a Problem		Not a Problem	
Condition or Situation	**No.**	**%**	**No.**	**%**	**No.**	**%**
Litter or trash in the streets	7	36.8	6	31.6	6	31.6
Graffiti	7	36.8	11	57.9	1	5.3
Vacant housing or storefronts	0	0.0	6	31.6	13	68.4
Poorly maintained property	0	0.0	11	57.9	8	42.1
Abandoned cars	1	5.3	6	31.6	12	63.2
Drinking in public	6	31.6	7	36.8	6	31.6
Selling or using drugs	6	31.6	6	31.6	7	36.8
Homeless people or street panhandlers	7	36.8	12	63.2	0	0.0
Loitering teenagers	4	21.1	1	5.3	14	73.7
People fighting or arguing	3	15.8	4	21.1	12	63.2
Conditions of sidewalks	4	21.1	12	63.2	3	15.8
Access to parking	5	26.3	8	42.1	6	31.6
Street lighting	5	26.3	8	42.1	6	31.6

Table 2.14
Commercial Activity

	Participants (n = 19)	
Commercial Activity	**No.**	**%**
Status		
Improved	18	94.7
Stayed about the same	1	5.3
Declined	0	0.0
Effectiveness		
Very effective	15	78.9
Somewhat effective	4	21.1
Ineffective	0	0.0

they stressed that something needed to be done to change the current process. BID representatives also revealed that they would like to establish better working relationships with the various city agencies associated with the BID organization. Several participants commented that, with so many different city organizations (e.g., city clerk's office, mayor's office, city council, and the city attorney's office) involved in the process, it could be difficult to conduct business effectively. Not only did the different agencies have conflicting ideas on how to operate the BIDs, they did not always understand or respect local neighborhood concerns.

BID Community Characteristics and BID Spending

BIDs are self-organizing entities that aim to improve commercial activity in an area chiefly through marketing, beautification, and increased public safety. Given this, it might be worth considering if underlying community characteristics are associated with BID spending priorities. Other research has identified differences in BID type and spending priorities associated with underlying community conditions (Gross, 2005). Because of our interest in how BIDs affect overall community conditions, we focused on differences in BID spending and community characteristics.

To examine this, we collected census data from 2000 for BID areas on the following key demographic and socioeconomic variables: unemployment rate, median household income, percentage of families in poverty (receiving welfare payments), percentage of female-headed households, percentage Latino, and median age. BID spending was split into three categories—beautification, marketing, and public safety—as described earlier. To account for differences in spending, we used percentage, rather than dollars, of spending on each category. Lastly, we further classified BIDs as high or low spenders in each category based on median percentage of spending for that category across the 30 BIDs. Table 2.15 presents mean, median, minimum, and maximum spending by category for the 30 L.A. BIDs. We used median as the cut-off point because the standard deviation (SD) exceeds or is near the means for each category of spending, indicating that spending is highly skewed.

Table 2.16 displays how the community characteristics differ for the high- and low-spending BIDs with the average for the city of Los Angeles. BID areas, when classified according to high- and low-spending categories, were, on average, better off economically than the city as a whole with higher median household incomes and lower unemployment and family poverty rates, though the percentage of female-headed households was slightly larger. These differences, however, were not statistically significant.

Regarding spending, we noted no statistically significant differences in proportion of spending by community characteristics. Only for public-safety budgets were any large differences observed in terms of community characteristics. For this category, areas with more average public-safety spending had higher median household incomes and fewer female-headed households than areas with low public-safety spending. These differences most likely are reflective of the desire of BIDs situated in areas with greater affluence to improve the public safety of their areas and enhance the economic vibrancy of their shopping district.

Table 2.15
Descriptive Statistics, by Percentage, of BID Spending Categories

Variable	Mean	Standard Deviation	Median	Min–Max
Beautification	31.8	26.75	27.5	0–80
Marketing	14.53	14.27	10.5	0–65
Public safety	17.03	22.34	4.5	0–79

NOTE: n = 30.

Table 2.16
Community Characteristics by High or Low BID Spending Classifications Compared to the L.A. City Average

Community Characteristics	Beautification		Marketing		Public Safety		L.A. City
	High	Low	High	Low	High	Low	
Hispanic (%)	39.9	37.5	39	38.4	34.8	42.6	46.6
Median age (years)	33.9	34.4	34.3	33.9	33.8	34.4	32.2
Female-headed household (%)	10.2	13.7	12	11.9	11.2	12.6	12.9
Unemployment rate (%)	9.7	14.4	8.9	15.1	11.1	12.9	9.8
Median household income ($)	39,431	31,666	38,035	33,062	40,829	30,267	41,525
Families in poverty (%)	11.4	13.4	12.7	12.2	12.0	12.8	11.1

NOTE: The differences between BID areas and the city of Los Angeles are also a function of population-weighting that was used to calculate data for BID areas so that larger BIDs would not skew the analysis.

Finally, it is worthwhile to consider whether spending patterns on beautification, marketing, and public safety are correlated with one another. To do this, we examined correlations among proportions for each spending category. Since these are portions of a total, we would expect to see negative associations among the categories, because any spending in one category reduces the amount of spending that can occur in another category. While none of the associations was significant, we do observe the trend that any spending in public safety was negatively associated with spending for marketing ($r = -0.30$) and beautification ($r = -0.28$). By contrast, the negative association between beautification and marketing was substantially smaller ($r = -.037$). This descriptive finding, however, is not surprising given that the largest fraction of spending in the larger BIDs is devoted to public-safety costs associated with hiring private security officers.

Summary

The 30 BIDs we described in Los Angeles have a diverse set of spending patterns and organizational foci. The priorities of these organizations do not appear to be associated with underlying community housing and income characteristics measured by the 2000 census, although BIDs situated in more affluent areas generally spend a greater share of their budgets on public safety and beautification. As organizations chartered by the city government, BIDs appear to use contacts with city agencies as a routine method of achieving their goals of advocating for city services in their locale. Funding from the BID assessment was used across three primary domains related to public safety, beautification, and marketing—categories that arguably serve to improve commerce and conditions in their assessment areas.

CHAPTER THREE

Observations of Business Improvement Districts

Overview

It is widely conceded that general measures of demographic and socioeconomic conditions may provide measures of differences in structural characteristics of communities but that they do not explain the social mechanisms by which crime and delinquency flourish in an area. Given that BID services tend to focus on local area concerns, such as public safety and beautification, and that each BID in Los Angeles has a unique geographic location and contour outlining how the borders of a BID are delineated, we pursued a structured method for identifying levels of physical and social disorder for each BID. Systematic social observation is a standardized approach to code direct observations of the physical, social, and economic conditions of public spaces (Sampson and Raudenbush, 1999) and have been used in urban sociology for the past century (see, e.g., Thrasher, 1927) as a method for describing between-neighborhood differences in social and physical environments. Visual signs of physical and social disorder, such as fighting in the street, prostitution, and abandoned cars, may serve as indicators that a community has a low level of informal social control or that the community is in a stage of decline (Skogan, 1990). The physical condition of a BID area—presence of blighted properties, condition of street and sidewalk surfaces—may also serve as a signal, directly or indirectly, of an area in physical decline and prone to crime (Taub, Taylor, and Dunham, 1984; Skogan, 1990; Taylor, 2001).

In this chapter, we present the application of this methodology to provide a descriptive picture of the level of physical and social disorder, physical decay, and other observable aspects of the environment of each BID. In addition, we use these observations to describe each BID and the characteristics of its commercial, residential, and industrial structures and whether the development in the area is stable, growing, or declining. Lastly, we describe how the observed levels of physical and social disorder vary by demographic and socioeconomic characteristics of neighborhoods exposed to BIDs.

Methodology

Protocol for Systematic Observations of BIDs

Thirty BID observations were conducted in July 2006. Observations were conducted on weekdays between the hours of 9:30 a.m. and 2:30 p.m. to avoid rush-hour traffic conditions that could affect the results of individual observations. Weather (e.g., rain) did not interfere with any of the observations, so we did not find it necessary to arrange backup protocols or alter the schedule.

To ensure consistency in the evaluation of each BID location, the same two data collectors conducted all observations. One data collector was designated as the driver and was responsible for operating the automobile during the observation. The other data collector was designated as the passenger and was responsible for navigating the team through the BID during the observation. Both the driver and the passenger were responsible for observing the BID and completing the data-collection form.

A predetermined protocol for conducting the observations in each BID was utilized. After referencing a map of each BID area, the trained observers drove to a designated intersection within each of the BIDs, generally toward an outlining boundary of the BID. The car would then be parked in a convenient and safe location, which allowed the observers to prepare the data-collection form for the given BID. While remaining in the car, each data collector would record his or her name, function (driver or passenger), the name of the BID, type of BID (commercial, residential, auto, or other), the date, day of week, and start time. From this location, the data collectors would scan the area for a few minutes to get a general sense of the neighborhood before proceeding onward.

After documenting the background details for each BID area, the data collectors slowly drove through the main street or streets of the BID. During the drive, observers would continue to scan the BID, making a mental note of what was observed. While observing the BID area, the observers focused on several factors, including the traffic flow, the condition of structures throughout the neighborhood (streets, sidewalks, commercial buildings, and residential dwellings), evidence of crime or fear of crime (graffiti, window bars, security, gang members, and prostitutes), and the types of commercial establishments in the area (pawn shops, check-cashing services, coin laundries, liquor stores, high-end restaurants, and street vendors).

When a data collector observed an item of interest, he or she was responsible for announcing it aloud to his or her partner. If, for example, the passenger observed a liquor store, he or she would point it out to the driver. On the other hand, if the driver noticed an off-street parking lot, he or she would point it out to the passenger. This was done to minimize what the driver could miss while focused on the road or what the passenger could miss while referring to the BID map. Although data collectors communicated what they saw during the observation period, no documentation was entered on the data-collection form while the car was in motion.

The length of time it took to complete BID observations varied depending on the size of the BID and the traffic conditions during the observation. Some BIDs consisted of several square miles (e.g., Wilshire Center), while others were only a few blocks long (e.g., Larchmont Village). Some BIDs were located in higher-density areas (e.g., Fashion District), which resulted in more traffic even at non–rush hour times of the day. On the other hand, the teams could quickly observe BIDs with sparse traffic (e.g., Downtown San Pedro).

After driving through the entire BID, the car was parked in a convenient and safe location. At this time, each data collector completed an observation form based on his or her overall impressions of the BID. The form included 19 questions based on a five-point Likert scale (e.g., "What is the general traffic flow in this BID?" and "How would you rate the general condition of the street surface for driving throughout this BID?"). In addition, the form included 17 yes/no questions (e.g., "Did you see any prostitutes in the area while observing this BID?" and "Did you see any check-cashing services while observing this BID?"). Data collectors did not communicate with each other while independently completing their forms. Once the forms were completed, both data collectors simultaneously recorded the end time. After the observation forms were completed, one of the data collectors took a digital picture of a large BID intersection for documentation purposes. The primary street and cross street were then noted on the data-collection form. The interrater reliability for the driver and observer for this physical assessment of BID areas was 0.89, indicating a high degree of agreement between observers.

Scores from the BID observations were weighted to adjust for the driver's and passenger's abilities to adequately see signs of physical and social disorder, physical decay, and other aspects of the observable environment in each BID area. Specifically, each observation was weighted so that the driver's responses contributed to 30 percent of the total score and the corresponding passenger responses accounted for the remaining 70 percent. While the difference in weighting does not change the substantive results presented, we chose this method as a way to discount the fact that the driver, in some circumstances, had limited ability to see social conditions in each BID area. For the yes/no measures, if either observer noticed the presence of a given item, it was included as present.

In general, the survey instrument was designed to rate the signs of physical decay, level of commercial activity, and observed indications of physical and social disorder in each BID area. Observers were also asked to indicate evidence of crime-prevention efforts or physical security on commercial buildings (e.g., video surveillance, security guards). The intent was to give an objective picture or observation of each BID area at randomly selected times during daylight hours. However, it is worth noting that this passing-through method has a number of limitations, including the inability to observe low-prevalence events that occur during the daytime, such as drug sales and prostitution, as well as the likelihood of missing features of neighborhoods that are present. Therefore, this description should be viewed as a limited third-party picture of each BID area and not an empirically valid assessment.

BID Description

As discussed in Chapter One, the process for creating BIDs occurs through a grassroots effort. As a result, there are a variety of locations and compositions of BIDs in Los Angeles. In this section, we describe some general information regarding the 30 BIDs observed. Specifically, to give the reader a visual sense for the variation in L.A. BIDs, we report on the type of business properties that make up the majority of the BID and the observed stage of development for each BID area.

Development Stage

Table 3.1 displays the makeup of each BID and its observed stage of development. As one would expect, 27 out of 30 BIDs were located in primarily commercial business areas with retail shops or restaurants present. The sole exceptions were the Lincoln Industrial Park and Downtown Industrial, which were the only BIDs with industrial businesses. One BID, the Van Nuys Blvd. Auto Row, is best described as an automotive BID because it is comprised largely of car dealerships. Auto parks, because of the value of the cars sold, tend to have higher tax revenues than similar adjoining areas. Only seven of the 30 BIDs contained residential buildings: Chatsworth, Figueroa Corridor, Jefferson Park, Lincoln Industrial Park, Northridge, Reseda, and Wilshire Center. Despite the lack of observed residential buildings directly inside these BID locations, it is worth noting that almost all BIDs in Los Angeles are surrounded by

Table 3.1
Stage of Development and Type

BID	Development Stage	Type of BID			
		Commercial	Residential	Automotive	Industrial
Canoga Park	Stable	X			
Century Corridor	Stable	X			
Chatsworth	Stable	X	X		
L.A. Chinatown	Stable	X			
Downtown Center	Growing	X			
Downtown Industrial	Stable	X			X
Encino	Stable	X			
Fashion District	Stable	X			X
Figueroa Corridor	Growing	X	X		
Granada Hills	Stable	X			
Greater Lincoln Heights	Stable	X			
Highland Park	Stable	X			
Historic Core	Declining	X			
Hollywood Entertainment	Stable	X			
Hollywood Media	Stable	X			
Jefferson Park	Stable	X	X		
Larchmont Village	Stable	X			
Lincoln Industrial Park	Stable		X		
Los Feliz	Stable	X			
Northridge	Stable	X	X		
Reseda	Declining	X	X		
San Pedro	Stable	X			
Sherman Oaks	Stable	X			
Studio City	Stable	X			
Tarzana	Stable	X			
Toy District	Stable	X			
Van Nuys Blvd. Auto Row	Stable	X		X	
Westwood Village	Stable	X			
Wilmington	Stable	X			
Wilshire Center	Growing	X	X		

residential neighborhoods and thus may affect or be affected by their surrounding community conditions.

Twenty-five BIDs were observed to be in a *stable* phase of development, meaning that there were physical signs of construction and commercial development under way. Three of the BID areas—Downtown Center, Figueroa Corridor, and Wilshire Center—are located close to downtown Los Angeles and were experiencing significant *growth*, meaning having significant observable signs of new buildings and construction under way, at the time of these observations. These activities are consistent with the recent upsurge in development downtown. In contrast, the Reseda and Historic Core BIDs appeared to be *declining*, meaning that there were no clear signs of development under way and blighted building infrastructure. It is worth noting that Historic Core is located in the infamous area of Skid Row and was at a *stagnant* stage of development, indicating no visible signs of construction or development projects under way.

Social Disorder

In addition to observing the makeup of BIDs and their stages of development, observers rated the level of social disorder witnessed in each BID area. Visual signs of social disorder, such as fighting in the street, prostitution, and drug dealing, may serve as indicators that a community has a low level of informal social control or that the community is in a stage of decay (Skogan, 1990). Social disorder is also a significant deterrent to commerce and to business investment. Research has found that social disorder is correlated with crime and youth violence, although there is debate about the exact causal nature, if any, of these associations (see J. Wilson and Kelling, 1982; Sampson and Raudenbush, 1999).

Given the potential importance of social disorder as an indicator of greater systemic community problems, we attempted to measure various aspects of this factor in each BID through direct observation. We measured several aspects of social disorder, including homelessness, drug and alcohol use, loitering, and the presence of fighting, prostitution, and perceived gang activity. Only a few BIDs showed any signs of social disorder during our observations.

According to our observations, homeless persons were visually present on the street in only eight BIDs: Downtown Industrial, Fashion District, Historic Core, Hollywood Entertainment, Hollywood Media, Los Feliz, Toy District, Wilmington, and Wilshire Center. Many of those BIDs are located near either Hollywood or the downtown areas, both notorious for their proximity to larger homeless populations. None of the social observations noted the presence of public alcohol use, drug use or sales, fighting, prostitution, or gang activity. Again, these observations occurred during the day and a limited time interval—meaning that these events may be occurring in these areas but were simply not observed during the drive-by view of those BID areas.

We also looked for instances of loitering, by either teens or adults, in each BID. Occurrences of loitering by either group were minimal. We observed teens loitering in only four of the 30 BIDs. Had observation taken place after school hours, this number would likely have been greater. The four BIDs in which loitering teens were observed were Downtown Industrial, Highland Park, Historic Core, and Toy District. Loitering adults were found in seven BIDs: Downtown Industrial, Highland Park, Historic Core, Hollywood Media, Lincoln Industrial Park, Los Feliz, and Toy District.

Systematic social observation showed few signs of social disorder in the majority of BIDs. Summing all the variables observed, only 11 BIDs had signs of social disorder. The greatest concentrations were in Downtown Industrial, Historic Core, and Toy District, each with three occurrences. Not surprisingly, these BIDs are located in the downtown core of Los Angeles in areas with high concentrations of homeless persons. Table 3.2 displays the results of observations of social disorder in each BID area.

Physical Disorder

As with social disorder, obvious signs of physical disorder in an area can have a dampening effect on commerce and serve as a signal that an area is unsafe (J. Wilson and Kelling, 1982; Skogan, 1990). Customers and residents may feel more comfortable and safer within BIDs that have less obvious signs of litter, graffiti, and abandoned cars. A stronger sense of place that accompanies cleaner streets encourages tourism and patronage and has increasingly positive repercussions in a BID.

Generally speaking, the 30 BIDs had very few signs of litter, graffiti, and cigarette butts and no cases of abandoned vehicles. Only two BIDs, Century Corridor and San Pedro, had no signs of physical disorder, due to either street sweeping, security, or other factors.

Overall, Downtown Industrial had the most signs of physical disorder in all categories, with many observations of litter and cigarette butts in the streets and some instances of graffiti. Jefferson Park and Greater Lincoln Heights ranked second highest in signs of physical disorder. Three BID areas (Fashion District, Lincoln Industrial Park, and Reseda) tied for the next-highest scores of physical disorder, each having at least two categories with some examples of physical disorder. Of these BIDs with the highest signs of physical disorder, all but Reseda (which is in decline, as noted in Table 3.1) are located in the downtown areas of Los Angeles. Table 3.3 displays the results of observations of physical disorder in each BID area.

Physical Condition

The physical condition of a BID area may also serve as a signal, directly or indirectly, that an area is particularly prone to crime, disorder, or youth violence. The condition and appearance of buildings, the presence of blighted properties, and the condition of street and sidewalk surfaces all influence the desire of residents and patrons to visit a BID. The level of attractiveness of an area, therefore, can have repercussions on the safety and commerce in a commercial area (Taub, Taylor, and Dunham, 1984). To rate the indicators of physical decay in each BID area, we noted relatively positive conditions of a number of factors in the building environment, including street surfaces, sidewalks, off-street parking, residential and commercial buildings, and trees.

The condition of street surfaces in a BID is an indication of, among other things, the funding (both private and public) injected into an area. Poor sidewalks can discourage pedestrian forms of commerce, especially for the elderly, disabled, and those with small children in strollers. Off-street parking provides interested patrons with an easy, and often free, access point to shops and businesses. Large amounts of off-street parking make patronage easier and decrease cruising traffic associated with driving around a block and waiting for on-street parking to open. The appearance and aesthetics of the buildings can draw customers to an area. Trees in a BID can add to the overall aesthetic of an area, attract more consumers and residents, and improve public health and safety (Kuo and Sullivan, 2001).

Positive Physical Conditions. Four BIDs—Downtown Industrial, Greater Lincoln Heights, Hollywood Media, and Lincoln Industrial Park—had only fair (see scale in Table 3.4)

Table 3.2
Social Disorder in BID Areas

BID	Homeless	Teens Loitering	Adults Loitering	No. of Types of Signs Observed
Canoga Park				
Century Corridor				
Chatsworth				
L.A. Chinatown				
Downtown Center				
Downtown Industrial	X	X	X	3
Encino				
Fashion District	X			1
Figueroa Corridor				
Granada Hills				
Greater Lincoln Heights				
Highland Park		X	X	2
Historic Core	X	X	X	3
Hollywood Entertainment	X			1
Hollywood Media	X		X	2
Jefferson Park				
Larchmont Village				
Lincoln Industrial Park			X	1
Los Feliz	X		X	2
Northridge				
Reseda				
San Pedro			X	1
Sherman Oaks				
Tarzana				
Toy District	X	X	X	3
Van Nuys Blvd. Auto Row				
Westwood Village				
Wilmington				
Wilshire Center	X			1
Observations (%)	27	13	27	

NOTE: X signifies that the sign of disorder was observed in that BID. The last column indicates the number of types of disorder observed, not number of incidents.

Table 3.3
Observations of Physical Disorder in BIDs, on Four-Point Likert Scale

BID	Litter	Graffiti	Cigarettes	Total Scale Points (12 possible)
Canoga Park	3	1	2	6
Century Corridor	1	1	1	3
Chatsworth	2	1	2	5
L.A. Chinatown	2	3	2	7
Downtown Center	2	1	2	5
Downtown Industrial	4	3	4	11
Encino	2	1	2	5
Fashion District	3	3	2	8
Figueroa Corridor	2	2	2	6
Granada Hills	2	1	1	4
Greater Lincoln Heights	3	3	3	9
Highland Park	2	3	1	6
Historic Core	2	2	2	6
Hollywood Entertainment	2	2	2	6
Hollywood Media	2	2	2	6
Jefferson Park	3	3	3	9
Larchmont Village	2	1	2	5
Lincoln Industrial Park	3	3	2	8
Los Feliz	3	2	2	7
Northridge	2	1	2	5
Reseda	3	3	2	8
San Pedro	1	1	1	3
Sherman Oaks	2	1	2	5
Studio City	2	1	1	4
Tarzana	2	1	2	5
Toy District	3	2	2	7
Van Nuys Blvd. Auto Row	2	1	1	4
Westwood Village	2	1	2	5
Wilmington	2	2	2	6
Wilshire Center	3	2	2	7
Average	2	2	2	6
Mode	2	1	2	5

NOTE: 1 = none, 2 = very few, 3 = some, 4 = many. Mode indicates the most common response.

street surfaces. This is perhaps attributable to their downtown location. Traffic and density in these areas make repairing roads more difficult. The eight BIDs that had the best street conditions were Canoga Park, Century Corridor, Chatsworth, Downtown Center, Granada Hills, Highland Park, San Pedro, and Tarzana.

We also examined the condition of sidewalks within BIDs. Four BIDs (Downtown Industrial, Greater Lincoln Heights, Hollywood Media, and Wilshire Center) were rated as having fair sidewalk conditions. The majority of BID areas had sidewalks that were rated in moderately good (see scale in Table 3.4) condition.

All but three BIDs had either fair or moderately good availability of off-street parking. The exceptions were Canoga Park, Century Corridor, and Encino, where there were very good amounts of off-street parking. This may be related to these BIDs' more-suburban outlying locations.

The condition of buildings within the BIDs was also reported, for both residential and commercial buildings. Only seven BIDs had residential buildings present. Of those seven, three (Greater Lincoln Heights, Jefferson Park, and Wilshire Center) were in fair condition, two (Lincoln Industrial Park and Reseda) were in moderately good condition, and two (Chatsworth and Northridge) were in very good condition. Of the 30 BIDs, almost all had buildings in either moderately good or very good condition. The lone exception was the Historic Core, whose buildings were, on average, in only fair condition.

Well-tended yards can be indicative of owner-occupied houses, affluence in a neighborhood, and a sense of civic pride among BID residents. Of the 10 BIDs with residential yards located within their district, half had very few well-tended yards. In the other five BIDs with residential yards, many or most yards were well-tended.

Only two BIDs (Fashion District and Toy District) had no trees. These BIDs are located in the downtown area of Los Angeles, which is heavily industrial and commercial.

Table 3.4 displays the results of the observations of positive physical conditions in each BID area.

Negative Physical Conditions. Signs of physical decay observed for each BID area included the presence of vacant lots or brownfields and abandoned buildings. Vacant lots and abandoned buildings are indicative of urban blight and a neighborhood in decline.

Only six BIDs (Chatsworth, Downtown Industrial, Greater Lincoln Heights, Jefferson Park, Lincoln Industrial Park, and Wilshire Center) had any vacant lots present. Of the six BIDs with vacant lots, all but one (Lincoln Industrial Park) had very few vacant lots, usually only one or two.

As one would expect, the average BID in Los Angeles had no abandoned buildings or vacant lots present. Nineteen BIDs had no abandoned buildings. Of the 11 BIDs with abandoned buildings, most had very few. Greater Lincoln Heights, Hollywood Media, and Reseda were the only BIDs rated as having some abandoned buildings.

Of the 30 BIDs observed, Greater Lincoln Heights had the highest scores for signs of negative physical condition, followed by Downtown Industrial, Hollywood Media, Lincoln Industrial Park, Reseda, and Wilshire Center. Results of our assessment of negative physical condition in BIDs are displayed in Table 3.5.

Crime-Prevention Efforts

Many aspects of the physical environment may affect crime and safety in a community, including a specific focus on crime-prevention efforts. We examined the presence and levels of

Table 3.4
Observations of Positive Physical Condition of BIDs, on a Four-Point Likert Scale

BID	Street Surface	Sidewalk Condition	Off-Street Parking	Condition of Commercial Buildings	Trees	Total Scale Points (20 possible)
Canoga Park	4	4	4	3	4	19
Century Corridor	4	4	4	4	4	20
Chatsworth	4	3	3	3	3	16
L.A. Chinatown	3	3	3	3	2	14
Downtown Center	4	4	3	4	3	18
Downtown Industrial	2	2	2	3	2	11
Encino	3	3	4	4	3	17
Fashion District	3	3	3	3	1	13
Figueroa Corridor	3	3	2	3	3	14
Granada Hills	4	3	3	3	4	17
Greater Lincoln Heights	2	2	3	3	3	13
Highland Park	4	3	3	3	3	16
Historic Core	3	3	2	2	2	12
Hollywood Entertainment	3	4	3	3	3	16
Hollywood Media	2	2	2	3	2	11
Jefferson Park	3	3	2	3	2	13
Larchmont Village	3	3	2	4	3	15
Lincoln Industrial Park	2	3	3	3	2	13
Los Feliz	3	3	2	3	3	14
Northridge	3	3	3	4	3	16
Reseda	3	3	2	3	2	13
San Pedro	4	4	2	4	3	17
Sherman Oaks	3	3	3	4	2	15
Studio City	3	3	3	4	3	16
Tarzana	4	4	3	4	4	19
Toy District	3	3	2	3	1	12
Van Nuys Blvd. Auto Row	3	3	2	4	3	15
Westwood Village	3	3	2	4	3	15
Wilmington	3	3	2	3	3	14
Wilshire Center	3	2	2	3	2	12
Average	3	3	3	3	3	18

NOTE: For trees, 1 = none, 2 = very few, 3 = some, and 4 = many. For all other variables, 1 = very poor, 2 = fair, 3 = moderately good, and 4 = very good.

Table 3.5
Observations of Negative Physical Condition of BIDs, on a Four-Point Likert Scale

BID	Vacant Lots	Abandoned Buildings	Total Scale Points (8 possible)
Canoga Park	1	1	2
Century Corridor	1	1	2
Chatsworth	2	1	3
L.A. Chinatown	1	1	2
Downtown Center	1	1	2
Downtown Industrial	2	2	4
Encino	1	2	3
Fashion District	1	1	2
Figueroa Corridor	1	1	2
Granada Hills	1	1	2
Greater Lincoln Heights	2	3	5
Highland Park	1	1	2
Historic Core	1	2	3
Hollywood Entertainment	1	2	3
Hollywood Media	1	3	4
Jefferson Park	2	1	3
Larchmont Village	1	1	2
Lincoln Industrial Park	3	1	4
Los Feliz	1	1	2
Northridge	1	1	2
Reseda	1	3	4
San Pedro	1	1	2
Sherman Oaks	1	2	3
Studio City	1	1	2
Tarzana	1	1	2
Toy District	1	1	2
Van Nuys Blvd. Auto Row	1	1	2
Westwood Village	1	2	3
Wilmington	1	1	2
Wilshire Center	2	2	4
Average	1	1	2
Mode	1	1	2

NOTE: 1 = none, 2 = very few, 3 = some, 4 = many.

various crime-prevention efforts, including residential bars or grates, commercial gates on door and windows, video surveillance on street corners, and mobile private security within the BIDs. Bars or grates on residential properties and security gates on businesses can be indicative of areas with higher crime rates. Some BIDs use funding to hire additional security or to install security surveillance cameras to bolster police presence in an area and deter crime.

Of the seven BIDs with residential properties, all had some grates on their windows. Five of these seven (Chatsworth, Jefferson Park, Lincoln Industrial Park, Reseda, and Wilshire) had some residential properties with bars on their windows.

The average BID in the study had some stores with security gates. Eight BIDs had very few buildings and stores with security gates. An additional 11 BIDs had stores with some security gates. Ten BIDs had many security gates on commercial properties. The exception was Century Corridor, which had no observed security gates. These data, however, can be misleading, since observations took place during business hours, at a time when gates, if present, would likely be open and thus obstructed from view.

Private security was physically observed in seven BIDs, including Chatsworth, Encino, Historic Core, Northridge, Tarzana, Toy District, and Wilshire Center. We did not observe private surveillance cameras installed in any BID. However, it is worth noting that several BIDs (e.g., Downtown Center and Hollywood Media) have private security cameras that were not obvious to the observers from the street. The results of our observations of crime-prevention efforts are displayed in Table 3.6.

Mix of Commercial and Noncommercial Space

The mixture of various commercial and noncommercial spaces may help clarify the picture of the composition of a BID area. Combinations of various service industries, restaurant types, and other facilities can have effects on the physical environment, patronage, and crime levels of a BID. We examined the presence of businesses, such as check-cashing facilities, liquor stores, pawnshops, and other firms, to establish a commercial and noncommercial landscape of the BID.

Table 3.7 displays the results from the observations of commercial and noncommercial places, i.e., those associated with more rental dwellings and poverty. Nineteen BIDs (63 percent) had at least one check-cashing facility within their boundaries. Eleven BIDs (L.A. Chinatown, Encino, Figueroa Corridor, Highland Park, Historic Core, Hollywood Media, Los Feliz, Reseda, Toy District, Wilmington, and Wilshire Center) had pawnshops located in the BID area. Nineteen BIDs (63 percent) had laundry facilities available to the public within the BID. Twenty-one BIDs (70 percent) had liquor stores present. Street vendors were present in 17 BIDs (57 percent). Only three BIDs (Canoga Park, Century Corridor, and Tarzana) had no examples of any of these commercial and noncommercial uses. Five BIDs (Encino, Figueroa Corridor, Highland Park, Toy District, and Wilshire Center) had all five signs of commercial space present.

Table 3.6
Observations of Crime-Prevention Efforts in BIDs

BID	Residential Bars or Grates (4-point scale)	Security Gate (4-point scale)	Private Security? (y/n)
Canoga Park	n.a.	3	
Century Corridor	n.a.	1	
Chatsworth	2	3	Yes
L.A. Chinatown	n.a.	3	
Downtown Center	n.a.	4	
Downtown Industrial	3	4	
Encino	n.a.	3	Yes
Fashion District	n.a.	4	
Figueroa Corridor	n.a.	3	
Granada Hills	n.a.	3	
Greater Lincoln Heights	4	4	
Highland Park	n.a.	4	
Historic Core	n.a.	4	Yes
Hollywood Entertainment	n.a.	3	
Hollywood Media	n.a.	3	
Jefferson Park	4	4	
Larchmont Village	n.a.	2	
Lincoln Industrial Park	3	4	
Los Feliz	3	3	
Northridge	1	2	Yes
Reseda	3	4	
San Pedro	n.a.	2	
Sherman Oaks	n.a.	2	
Studio City	n.a.	2	
Tarzana	n.a.	2	Yes
Toy District	n.a.	4	Yes
Van Nuys Blvd. Auto Row	n.a.	2	
Westwood Village	n.a.	2	
Wilmington	n.a.	3	
Wilshire Center	3	3	Yes
Average	3	3	
Mode	3	4	
Observed (%)			23

NOTE: For bars and gates, 1 = none, 2 = very few, 3 = some, and 4 = many.

Table 3.7
Observations of Commercial and Noncommercial Uses in BIDs

BID	Pawn Shop	Check Cashing	Coin Laundry	Liquor Store	Street Vendor	No. of Types of Uses Observed
Canoga Park						0
Century Corridor						0
Chatsworth		X	X	X		3
L.A. Chinatown	X	X			X	3
Downtown Center				X	X	2
Downtown Industrial		X	X	X	X	4
Encino	X	X	X	X	X	5
Fashion District			X		X	2
Figueroa Corridor	X	X	X	X	X	5
Granada Hills		X	X	X	X	4
Greater Lincoln Heights		X	X	X		3
Highland Park	X	X	X	X	X	5
Historic Core	X	X			X	3
Hollywood Entertainment				X	X	2
Hollywood Media	X		X	X	X	4
Jefferson Park		X	X	X	X	4
Larchmont Village				X		1
Lincoln Industrial Park					X	1
Los Feliz	X	X	X	X		4
Northridge		X	X	X		3
Reseda	X	X	X	X		4
San Pedro			X	X		2
Sherman Oaks			X	X		2
Studio City		X	X	X	X	4
Tarzana						0
Toy District	X	X	X	X	X	5
Van Nuys Blvd. Auto Row		X		X		2
Westwood Village		X			X	2
Wilmington	X	X	X			3
Wilshire Center	X	X	X	X	X	5
Observations (%)	37	63	63	70	57	

Social and Physical Disorder, Community Characteristics, and BID Spending

The analysis of BID budget data and interviews suggests that these self-organizing entities aim to improve commercial activity in an area chiefly through marketing, beautification, increased public safety, and advocating for more-responsive city service provisions. However, we noted diversity in BID spending priorities and the observed social and physical environments in which they are situated. Given this, it might be worth considering if underlying community characteristics are associated with observable differences in BID environments. To examine whether these observed differences between BIDs were also associated with underlying structural characteristics of BID areas, we examined whether clear signs of social and physical disorder were correlated with differences in the demographic and poverty compositions of each BID area. These descriptive results are presented in Table 3.8. We compare the differences between BIDs with any sign of social disorder and those with some signs of social disorder. For comparisons of physical disorder, we examined the differences between BIDs with no signs of graffiti and those with very few or more signs of graffiti.

There were several differences between the community characteristics (captured by measures of ethnicity, age, and household-income indicators) and the presence of social and physical disorder. These tests, however, should be considered conservative, since our small sample size hampers our capacity to detect significant statistical differences. We found that areas with more social and physical disorder had a significantly higher percentage of Hispanics, higher unemployment rates, more poverty, and lower median household incomes. These findings probably reflect the unique composition of some urban BIDs situated in commercial centers in neighborhoods with disproportionately high numbers of low-income households. The quintessential examples of these areas are Toy District BID, with higher social and physical disorder and high rate of unemployment (52.2 percent) and low median income ($10,959), and Greater Lincoln Heights, with relatively high percentages of Hispanics (64 percent) and families receiving public assistance (40.9 percent). From this descriptive comparison, we see no clear signals of high affluence characterized by high social and physical disorder.

In Chapter Two, we observed that community conditions were not associated with BID spending. It might be worth considering instead whether observed social and physical disorders are associated with BID spending. Table 3.9 presents the mean and median spending

Table 3.8
Signs of Social and Physical Disorder and Community Characteristics

Community Characteristic	No Social Disorder (n = 19)	Some Social Disorder (n = 11)	No Graffiti (n = 14)	Graffiti (n = 16)
Hispanic (%)	33.3*	47.9	25.5*	50.3
Median age (years)	34.4	34.05	35.6	32.9
Female-headed households (%)	10.7	14.1	10.5	13.2
Unemployed (%)	8.6***	17.9	7.9**	15.6
Median household income ($)	43,304***	22,152	49,026***	23,755
Families in poverty (%)	10.3**	16.2	7.1***	17.1

NOTE: * = $p < 0.10$. ** = $p < 0.05$. *** = $p < 0.01$.

Table 3.9
Social and Physical Disorder, by Mean and Median BID Spending Priorities (%)

	No Social Disorder (n = 19)		Some Social Disorder (n = 11)		Less Graffiti (n = 14)		More Graffiti (n = 16)	
Priority	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Beautification	33	32	29.7	25	37	37	27	24.5
Marketing	18	14	8.5	5	21	16.5	8.8	5.0
Public safety	14	7	21.7*	0	10.5	4.5	22.8*	11

NOTE: n = 30. * $p < 0.05$ (using Brown-Forsythe and Welch tests).

percentages on beautification, marketing, and public safety, by classifications of BIDs into high and low social and physical disorder groups.

The results of this descriptive comparison indicate that the proportions of spending for disorder measures for beautification is relatively uniform across BID areas. In contrast, spending proportions for marketing and public safety differed by level of disorder, with the presence of disorder resulting in less spending on marketing and proportionally more spending on public safety. And in fact, the areas with higher levels of disorder had significantly higher proportions of spending on public safety than those with lower levels of disorder. Given that areas with higher levels of social and physical disorder had more-concentrated poverty, these findings on spending point to one way in which BIDs might be responding directly to concerns in their respective communities and, in turn, affecting crime and violence outcomes. Through their mobilization of private resources through assessments and reallocations of these funds disproportionately to public-safety spending, BIDs attempt to directly affect physical and social safety in the neighborhoods where they are situated.

Summary

Observations of the physical and social makeup of the L.A. BIDs suggest an appreciable amount of diversity in the social and physical environment. There were notable variations in the levels of social and physical disorder among the observed BIDs. Districts located near the Skid Row area of downtown Los Angeles had the highest rates of social and physical disorder. Downtown Industrial, Historic Core, and the Toy District all ranked consistently higher than other BIDs in levels of homelessness and loitering. The fact that these BIDs are located in the area of Los Angeles with the highest concentration of poverty and homeless individuals suggests that this issue is more systemic and may be beyond the direct control of the BIDs themselves.

Downtown Industrial also ranked highest in the level of physical decay, with obvious signs of litter, graffiti, and cigarettes on streetscapes and sidewalks and worse conditions of street surfaces, sidewalks, and commercial buildings and fewer trees. The neighboring Historic Core and Toy District also ranked high in signs of physical decay. By contrast, these same BIDs ranked near the top in obvious signs of crime-prevention efforts. The mix of potentially negative property types, however, did not appear to be associated with BID locations. Downtown Industrial, for example, was rated among the highest in physical and social disorder but did not have a particularly high prevalence of pawnshops, check-cashing establishments, or liquor stores. Together, the results from systematic social observation of BID areas suggests that the most-obvious signs of deterioration in the physical environment are found in districts in areas with historically depleted economic bases and that it is in these areas that BIDs are expending more effort on public safety.

Given the observed variations in BID areas, the next chapter focuses on whether living in neighborhoods exposed to BIDs is associated with systematic differences in neighborhood attributes and the exposure to youth violence compared to similarly situated households in non-BID neighborhoods.

CHAPTER FOUR

Family, Individual, and Community Effects on Youth Violence

To examine whether BIDs are associated with community-level processes linked to youth violence, we conducted a household survey of parents and adolescents living in L.A. neighborhoods exposed to BIDs and a matched group of neighborhoods not exposed to BIDs. The primary purpose of the household survey was to assess the dynamics of youth violence at both the individual and neighborhood levels and to examine whether BIDs have any effect on incidence of youth violence in neighborhoods.

A quota sample of 810 households residing in 233 census tracts was chosen via list-assisted sampling methods. The sampling plan was designed to match respondent households in intersecting BID areas and a comparison group of households living in non-BID neighborhoods that were statistically comparable in their exposure to 10 social and economic features as measured by the 2000 census. The survey yielded a final sample of 737 households, less than the planned quota but with enough variation to yield sufficient statistical power to estimate individual household and neighborhood effects.

The household survey involved assessments of parent and youth perceptions of neighborhood incivility and social cohesion, family relationships, bonds to school and family, and exposure to youth violence. The results from our analysis suggest that individual and neighborhood attributes are associated with youth violence. Living in a BID neighborhood neither is directly related to youth violence nor appears to effect neighborhood mechanisms associated with youth violence.

Several important neighborhood-related features, however, are significantly associated with a reduced incidence of youth violence and may, over time, be related to the more active BIDs' efforts to improve community conditions and economic-development activities. In the following sections, we explain the data sources and methodology for conducting the household survey and the analytic strategy for modeling individual- and neighborhood-level effects on youth violence.

Methods

Data Sources

To develop a sampling frame whereby residents living in BID areas could be compared to those living in comparable non-BID areas, we relied on census tract–level data detailing aggregations of various household-, family-, and individual-level indicators (U.S. Census Bureau, undated) that have been shown in prior research to be correlated with area differences in crime and other negative health outcomes (see Land, McCall, and Cohen, 1990; Sampson, Morenoff, and Gannon-Rowley, 2002; Sampson, Morenoff, and Raudenbush, 2005).

These categories include race and ethnicity, economics and earnings, household characteristics, and residential-unit characteristics. Race and ethnicity data include the percentage of various racial representations in a given neighborhood, as well as the percentages of Latino and non-Latino populations. Also represented in this category is the percentage of residents born outside the United States. Economics and earnings variables include mean household earnings, the percentage of households receiving governmental assistance (welfare), and the percentage of households living below the poverty line. Household characteristics include the percentage of female-headed households.[1] Residential-unit characteristics include how old units are, whether they are owner occupied, and the residential density in an area.

To investigate the effects that the presence of a BID has on youth violence, geographic shape files for the census tracts in the city of Los Angeles were used to map the locations of all tracts (U.S. Census Bureau, undated: U.S. Census 2000 Summary File 1 [SF 1], SF 2, SF 3)[2] and their relationship to BID areas. A shape file containing the 30 established BIDs was obtained from the City of Los Angeles Office of the City Clerk (undated) and overlaid with the census-tract files. These census-tract measures were then applied to a matching algorithm to establish a comparison group of neighborhoods where residents are exposed to structural features that are similar to those of BID neighborhoods.

In addition to census-level data and BID locations, crime data provided by the LAPD were also integrated into a geographic file. Specifically, Federal Bureau of Investigation (FBI) Part 1 crime offense codes were abstracted for the smallest geographic unit reported by the police—the police reporting district (RD). These crimes include homicide, rape, robbery, assault, burglary, larceny, and motor-vehicle theft. RD data include the count of each offense classification for years 1994 to 2005. There are, on average, about 1.2 RDs per census tract, and each is, on average, 2.1 square miles.[3] For the purposes of this part of the report, we focus on the level of violent-crime counts for homicide and robbery because they are less susceptible to differences in reporting and have consistently been shown to have higher reliability than other reported crime (Sampson, 1987; Hindelang, Hirschi, and Weis, 1981).

All three data sources (census, BID locations, and crime reports) were spatially integrated with ArcMap™ software, a GIS program. In ArcMap software, tabulated data were merged with corresponding geographic area (tracts, RDs, and BIDs). Once mapped, the various shape files were then layered and integrated by using a distance function for all tracts adjoining BIDs, which serve as the treatment group of neighborhoods. Because census tracts, BID areas, and police RDs all have different geographic shapes, areal interpolation was used to reconfigure all data sources into the same geographic unit. For the purposes of the present analysis, census tracts were chosen as the target geographic zone, and BID areas and police RDs were interpo-

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1 *Householder* refers to the person (or one of the persons) in whose name the housing unit is owned or rented (maintained) or, if there is no such person, any adult member, excluding roomers, boarders, or paid employees. If a married couple owns or rents the house jointly, the householder may be either the husband or the wife. The person designated as the householder is the reference person to whom the relationship of all other household members, if any, is recorded.

2 *Shape files* are a set of files that contain a collection of points, arcs, or polygons that hold tabular data and associate it with a spatial location. This file format is used in ArcView® and other geographic information system (GIS) software.

3 There are a total of 1,072 RDs and 837 census tracts that are located primarily within the city of Los Angeles.

lated into tract areas using an areal weight—the proportion of areal overlap between the source and target zones.[4] The following formula was used for estimating data for census-tract zones:

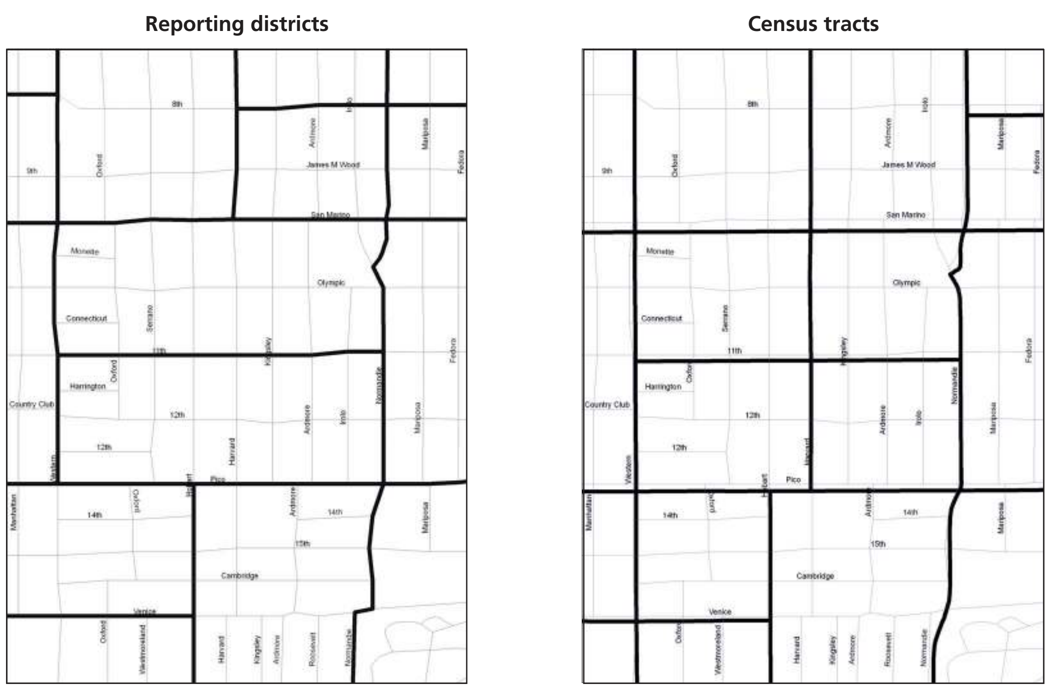
$$y_t = \sum \frac{A_{st} y_s}{A_s}, \tag{4.1}$$

where y_t is the target zone, s is the source zone, and st is the intersection of the source and target area. A_{st} refers to the area of the intersection, and A_s is the area of the source zone. This method is displayed in Figure 4.1 for a sample of overlapping census tracts and police RDs.

Study Design

Neighborhood census tracts were not randomly assigned to receive a BID. Therefore, it is likely that there are household and economic features of areas that are associated with BID formation. If one compares neighborhoods with BIDs to a set of neighborhoods without a BID but does not take into account the differences in selection, the effects observed will be confounded by these characteristics of treatment assignment. In particular, it is important to match the BID neighborhoods with the non-BID neighborhoods with respect to all those characteristics

Figure 4.1
Example of Overlapping Census Tracts and Reporting Districts



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[4] This method assumes that the source data or analysis units are uniformly distributed over the source zones. However, if no other ancillary data are available to better inform on how the analysis units are spatially distributed, then the areal weighting method is acceptable (Goodchild and Lam, 1980).

that are associated with both the BID-assignment process and the outcome of interest: youth violence.

Based on prior literature on neighborhood effects on youth violence, we selected 10 features for matching BID and non-BID tracts (see Sampson, Morenoff, and Raudenbush, 2005) (see Table 4.1). This matching was based on tract-level characteristics taken from the 2000 census related to (1) *concentrated disadvantage* (percentage of people living below the poverty line, percentage of female single parents with children under 18, percentage of families on welfare, and percentage unemployed) (see Sampson, Morenoff, and Raudenbush, 2005); (2) *age structure* (percentage of the population who are male and under 25 years of age), (3) *residential stability* (percentage of units occupied for five years or more, percentage of housing units that are owner occupied), (4) *racial composition* (e.g., percentage Latino, percentage foreign born), and (5) *population density* (e.g., population per square mile).

Census tracts were chosen as the sampling unit for analysis because they are designed to enclose populations and neighborhoods that are relatively homogenous and contain populations in the range of 2,000–10,000 (mean: 4,000). They are small enough to study population-level effects in a homogenous population but large enough to sample, for an estimate of neighborhood effects for the entire set of neighborhoods that are exposed to BIDs and their relationship with the social, economic, and environmental factors. We recognize that the selection of census tracts provides some limitations to the refinement of approximating neighborhoods and therefore conduct a series of sensitivity analyses that specifically compares the results using other levels of neighborhood aggregation (e.g., neighborhood clusters that are larger than census tracts).[5]

Table 4.1
Expected Characteristics of the BID and Non-BID Samples

	Expected Characteristic	
Variable	**BID Sample**	**Non-BID Sample**
Female head of household + children under 18 (%)	25	25
Unemployed (%)	8	8
Below poverty line (%)	15	15
Receiving welfare (%)	8	8
Population male + under 25 (%)	21	21
Latino (%)	50	50
Foreign born (%)	40	40
Owner occupied (%)	63	59
Units occupied more than 5 years (%)	51	51
Population per square mile	9,870	9,883

SOURCE: U.S. Census Bureau (undated: U.S. Census 2000 SF 1, SF 2, SF 3).

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5 Had we chosen a smaller unit of analysis, such as the census-block group, we would not have enough variation within blocks to estimate area effects with sufficient statistical power or reliability.

Sampling Strategy

At baseline, respondents were selected from neighborhoods (census tracts) that have an established BID program and from the comparison group of matched neighborhoods that do not have an established BID program. To select households in BID and non-BID areas that were exposed to similar structural features, we designed a sample allocation that would match residents living in BID neighborhoods to those living in non-BID neighborhoods in Los Angeles. There were a total of 147 census tracts that bordered the 30 established L.A. BIDs. The sample design for the neighborhood household survey allocated a minimum number of observations (approximately 10) from each of the 147 census tracts that overlap with a BID in Los Angeles. From 2000 census data, we obtained an estimate of what the sample of a household would look like, on average, from neighborhoods (BID sample) that are exposed to the BID treatment. The second column of Table 4.1 indicates the characteristics of the BID sample that we expected to observe from census data.

When selecting households from comparison non-BID census tracts, random sampling would not likely generate a sample with characteristics similar to those in the second column of Table 4.1. Therefore, we developed a targeted sample-allocation algorithm that samples from non-BID areas so that the comparison sample has household characteristics similar to those of the expected BID sample. This approach effectively creates a balance between BID (treatment) and non-BID (control) neighborhoods.

There were 690 non-BID census tracts in Los Angeles. Census data indicate that these tracts have up to 2,300 households with children. We constrained the allocation so that we would sample no more than 50 households in a census tract, nor would we allocate more than half of those households with children within a census tract to the sample. Furthermore, if we allocated any sampling effort to a census tract, then we required that at least 10 households be surveyed from that census tract. The sample-allocation algorithm proceeded sequentially through the following steps:

1. Set the sample allocation for each of the 690 non-BID census tracts to 0.
2. Find the census tract, *i*, that has a distribution of households most similar to the BID sample's distribution (shown in the second column of Table 4.1).
3. Allocate at least 10 households from census tract *i* to the sample.
4. Find the census tract, *j*, such that, if allocating one household from that census tract to the sample, the non-BID sample would be most similar to the BID sample.
5. If the allocation to census tract *j* exceeds 50 or exceeds half of the number of households with children, then discard census tract *j* and return to step 4.
6. Increase the sample allocation for census tract *j* by one household. If the allocation to census tract *j* is less than 10, then set the allocation to 10.
7. If the total allocation is less than 750 households, then return to step 4.

We measured distribution similarity in steps 2 and 4, using the mean absolute difference in the standardized household characteristics between the BID and non-BID census tracts.

This sequential algorithm allocated between 10 and 50 households to 85 non-BID census tracts. The expected distribution of features of these households is shown in the third column of Table 4.1. As Table 4.1 shows, the BID and non-BID households are expected to have a nearly identical feature distribution if we select random samples within each census tract with the sample size given in the allocation.

Table 4.2 displays an example of the matched census tracts that was achieved through this sequential algorithm.

This methodology has, in effect, created a matched comparison group of neighborhoods from which to sample households in non-BID areas that are similar to those sampled from neighborhoods intersecting BIDs. Figure 4.2 displays the map of the geographic location of the BID (treatment) and non-BID (control) areas. The BID treatment area was defined in terms of 147 census tracts that covered the combined area of the 30 BIDs in Los Angeles. The comparison areas consisted of 85 census tracts with expected sampled households of similar sociodemographic characteristics.

Sample Collection

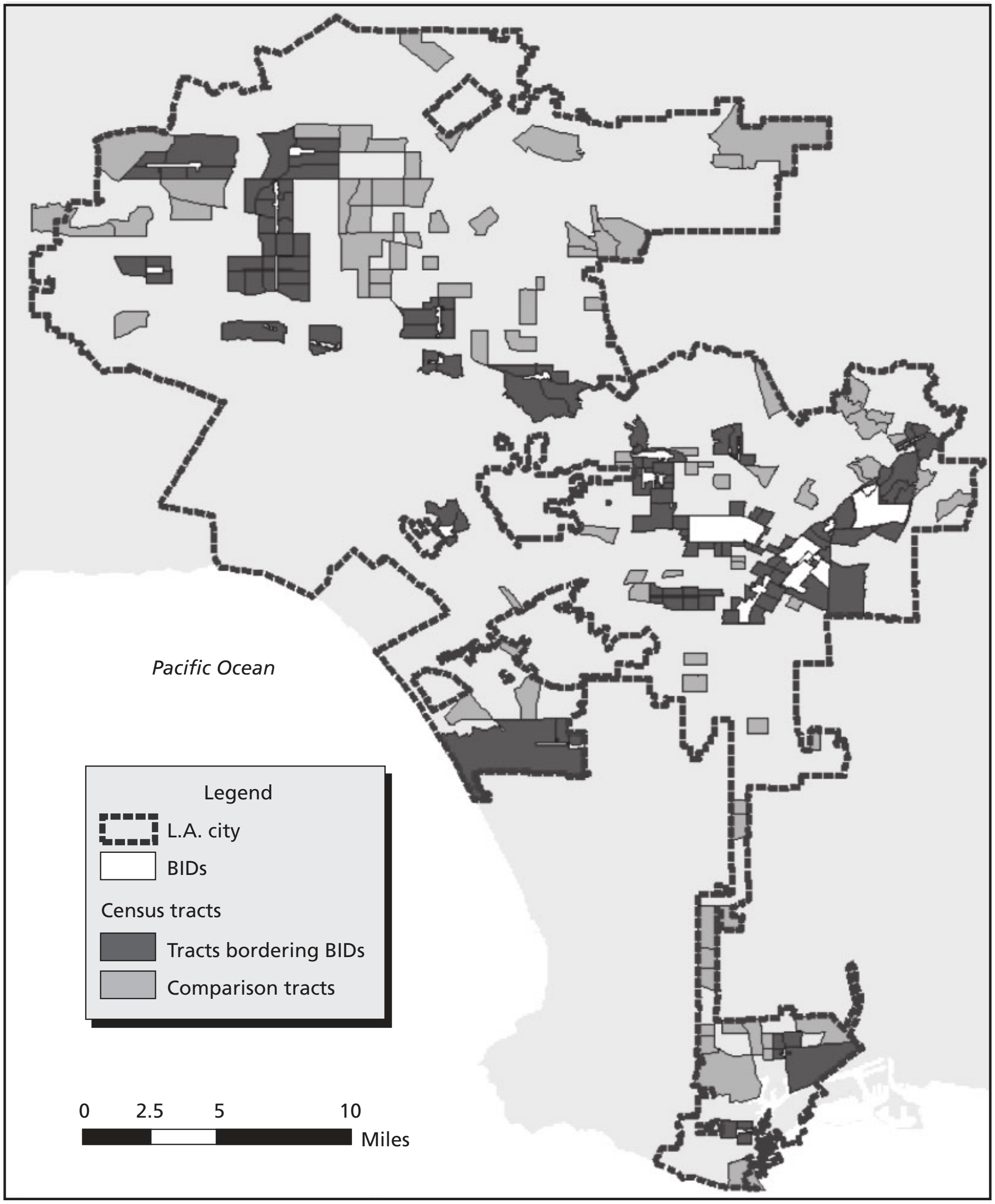
Our examination of the relationships between the individual and neighborhood features and their association with youth violence are based on a survey undertaken by the RAND Corporation through a subcontract to Research Triangle International (RTI). Between October 2006 and February 2007, RTI conducted telephone survey interviews with randomly selected adult parents and youth (ages 14 to 17) in the targeted neighborhoods.[6] Human subject protection committees (HSPCs) from RAND, RTI, and the Centers for Disease Control and Prevention (CDC) approved the procedures for the survey.

Table 4.2
Allocation of the Non-BID Household Sample

Census Tract	*n*	Census Tract	*n*	Census Tract	*n*
101110	10	123104	33	218800	25
104106	11	123204	14	219500	10
106111	10	123700	10	220000	10
106402	42	123800	14	221110	10
106603	10	124102	10	221120	10
109300	16	124600	50	227020	10
109500	12	127220	10	232500	11
109602	39	127300	15	237300	12
109700	10	127510	10	240200	11
111100	19	134103	10	240700	10
113211	11	137201	10	242200	11
122110	39	194300	10	297600	38

[6] Calls were conducted between 9:00 a.m. and 9:00 p.m. mountain standard time (MST). Throughout the telephone data-collection period, project staff and telephone supervisors monitored a sample of the interviewers' calls. This process enabled project staff to target any problems associated with the computer-assisted telephone interviewing (CATI) scripts and interviewers' technique. In addition to continuous monitoring, project staff held regular quality-control meetings with telephone interviewers and supervisors. This gave the interviewers an opportunity to ask project staff questions about any concerns or problems they may have had. In turn, these meetings gave project staff an opportunity to provide feedback to the interviewers on any problems detected with the data and kept the interviewers informed of their progress.

Figure 4.2
Los Angeles BID and Matched Comparison Neighborhoods



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As previously discussed, a quota system was established to ensure that samples of adults and youth were allocated to achieve a balance between BID and non-BID neighborhoods on key demographic features. RTI used a sampling frame of purchased directory-listed telephone numbers that were limited to the targeted neighborhoods. The listed household-sampling frame was purchased with geo-codes matching published street addresses to census tracts in BID and comparison neighborhoods. This approach was used instead of a random-digit dial (RDD) because of the difficulty of determining through RDD whether unlisted households are located within the target census tracts. Limiting the sample to listed numbers created the potential for bias because of unknown differences between listed and unlisted households. In the past, RTI has found that a high proportion of the unlisted households collected through RDD refuse to provide their street addresses. Obtaining street addresses was a necessary step for the study design, therefore negating the possibility of using RDD.

After a few weeks of data collection, RTI realized that projected contact rates exceeded their actual production. In response, RTI employed a number of strategies designed to more efficiently prioritize households with a higher likelihood of containing an age-eligible adolescent. Thus, the list-assisted sample was supplemented with marketing data on magazine subscriptions and driver-license databases to identify 3,833 households that may contain an eligible youth. RTI staff sent out lead letters encouraging participation in the survey with a toll-free number, a project brochure, and a $1 prepaid cash incentive. These cases were then flagged in CATI to receive higher priority in the call scheduler. This effort proved to be successful: Of flagged cases, 21.7 percent screened as eligible, compared with 4.1 percent of unflagged cases.[7]

In addition to prioritizing calls, RTI conducted an analysis of the expected yield by census tract during the data-collection phase and identified tracts in which the target number of interviews had been achieved or that had no reasonable chance of achieving additional interviews. These tracts were subsequently designated as low priority.

Table 4.3 displays the target and sample obtained for each of the selected BID and non-BID census tracts. To protect the confidential nature of the data, census-tract numbers have been deidentified. A review of Table 4.3 shows that approximately 41 percent ($n = 89$) did not meet the quota goal and 24 percent ($n = 52$) exceeded the target quota. The allocation of under- or oversampling, however, was distributed evenly across census tracts such that it did not affect the overall study design to balance household features of BID and non-BID tracts.[8] Table 4.4 summarizes the survey response results.

A final total sample of 737 eligible households agreed to participate in the survey. The overall effective response rate was 40.2 percent. Of these 737 interviews, 85 percent ($n = 627$) completed a parent/youth dyad.[9]

The sampling plan yielded a probability sample of residents with a large enough sample allocated to BID and non-BID neighborhoods to estimate between-neighborhood differences. This sample should not be considered a probability sample of the population of all households with adolescents. The variety of unknown features of this population and the difficulty in obtaining respondents suggests that the sample represents only those in the population with listed numbers who were willing to participate in the survey.

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7 Conserving interviewer resources for the important work of obtaining cooperation and conducting interviews also led to the use of market-research firms that were capable of dialing all list-assisted cases within two business days and assigning codes of (1) disconnected, (2) business, (3) English-speaking household, (4) Spanish-speaking household, or (5) unknown, ring, or no answer. Of the 44,762 cases that used this approach, only 16,323 (36.5 percent) were confirmed as residential numbers. Lead letters were mailed to these confirmed residences, and RTI interviewers began conducting telephone follow-up of these numbers in December 2006.

8 Inverse-probability weighting (IPW) of the BID and non-BID samples to their original allocations yielded effective sample sizes ($n = 365$ BID; $n = 390$ non-BID) that were statistically comparable to those actually achieved ($n = 362$ BID; $n = 374$ non-BID).

9 A total of 113 households provided a parent interview but not a complete youth interview, and 20 households provided a youth interview but not a complete parent interview.

Table 4.3
L.A. Neighborhoods by Target Quota and Sample Obtained

Statistical Neighborhood	Target Quota (no. of households)	Sample Obtained	Percentage of Target
1.00	1	0	100
2.00	2	0	100
3.00	2	0	100
4.00	2	0	100
5.00	2	0	100
. . .			
28.00	3	1	66.7
29.00	2	1	50
30.00	3	1	66.7
31.00	3	1	66.7
32.00	5	1	80
33.00	3	1	66.7
48.00	2	1	50
49.00	2	1	50
50.00	3	1	66.7
51.00	2	1	50
52.00	3	1	66.7
. . .			
101.00	4	3	25
102.00	4	3	25
103.00	2	3	–50
. . .			
215.00	11	13	–18.18
Total	810	737	

Table 4.4
Disposition of Survey Reponses

Eligible Contacts	Screen-Outs	Total Completes	Response Rate (%)
1,833	36,836	737	40.2

Fifty-eight percent of sampled household adult respondents were immigrants, and 55 percent identified as Latino. These figures exceed the most recent (2000) census population estimates for the sampled neighborhoods, which indicated that 40 percent of the population was foreign born and 50 percent were of Latino ethnicity. The baseline sample may be a closer representation of the population of households with teenage children. The ethnic and racial characteristics of the survey's respondents, therefore, may resemble the actual ethnic characteristics of households with teens in these neighborhoods. Alternatively, the sample may be reflective of more recent immigration trends of residents from Latin American countries into L.A. neighborhoods. Because of the potential changes in demographics in these areas since the 2000 census, we did not reweight the sample to mirror that of the census population. The analysis presented in this study is, therefore, unweighted. Because the sample allocation between neighborhoods was designed to be self-weighting, we also do not weight neighborhoods (see Sampson, Morenoff, and Raudenbush, 2005, for a similar approach). The results from the subsequent analyses are based on a final sample of 737 households clustered in 215 census tracts, with mean/median imputation adjustments made for missing data on the variables considered.[10]

Measures

The outcome measure of this analysis focuses on self-reported violent victimization among youth participants aged 14 to 17. Each youth was asked to indicate whether, during the previous 12 months, he or she had experienced (1) another youth trying to steal something from him or her by force; (2) another youth threatening him or her with a gun, knife, or club; (3) another youth hitting him or her badly enough to require bandages or a doctor; (4) a physical attack by a group of two or more youth; (5) seeing someone in the neighborhood being assaulted by a group of two or more youth.[11] The prevalence of experiencing violent victimization ranged from a low of 3 percent for being seriously injured from violence to a high of 16 percent for witnessing violence in their neighborhood. Individual items from the household survey were combined into a single hierarchical scale, with witnessing violence in the neighborhood serving as the least serious category with the highest prevalence (see Sampson, Morenoff, and Raudenbush, 2005, for a similar approach).

Family Attributes

A number of measures were derived from extant literature to assess the association between individual- and family-related contextual variables and youth violence. To assess ethnic and immigrant disparities in youth violence, subjects' ethnicities were derived from the adult household interviews. Subjects were identified first as immigrants (non–U.S. born) and second by race and ethnicity. Approximately 58 percent of subject households were identified as immigrants, and 55 percent self-identified as Latino. Close to 83 percent of immigrants indicated that they were Latino. Because of the relative minority of households comprised of other racial and ethnic groups (African American: 6 percent, Asian: 5 percent, white: 34 percent), the

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[10] Nonresponse in this study occurred because respondents indicated that they were unwilling or did not know how to answer some questions. Analysis of nonresponse patterns, with and without mean/median imputation adjustments, yielded estimates comparable to those herein, but deflated.

[11] The scalable measures of violence and neighborhood-level processes were adapted from publicly available instruments used in previous research, including the Project on Human Development in Chicago Neighborhoods, the National Longitudinal Study of Adolescent Health (Add Health), the Los Angeles Family and Neighborhood Survey, and other sources (see Peterson et al., 2004; Inter-University Consortium for Political and Social Research, undated; and CPC, undated).

present analyses focus only on differences between Latinos and other ethnicities and between immigrants and nonimmigrants in the sample.[12]

To assess the extent to which family and individual background factors are related to individual differences in the likelihood of experiencing a violent victimization, we selected a common set of risk factors, including age of teen, gender, socioeconomic status of household, years living in the current neighborhood, whether extended family live in the proximal neighborhood, levels of youth bonds to family and school, and the importance of religion in the household. Age of the teen was included as a covariate because older teens are at greater risk for violence due to a number of factors, including reduced parental monitoring (Loeber and Farrington, 1998; Reiss, Roth, and Miczek, 1993). Gender was included because a large body of research indicates that males experience a disproportionate share of violent offending and victimization (see McCord, Widom, and Crowell, 2001 for a review). Prior research suggests that exposure to youth violence varies across social class gradients (Loeber and Farrington, 1998). To assess socioeconomic status (SES), we included an average summed index of the parental respondent's reported level of education, household mortgage or rent, and household income. Education was measured on a six-point scale from less than high-school diploma to a graduate or professional degree. Household mortgage or rent was measured on a six-point scale from $500 or less to more than $2,500 per month. Household income was measured on a six-point scale from $20,000 or less to $100,000 or more.[13]

Research also suggests that youthful offending and victimization are associated with the extent to which youth are bonded to institutions of family and school (Lipsey and Derzon, 1998; Hawkins et al., 1998; McCord, Widom, and Crowell, 2001). Bonds to family and school were assessed based on eight five-point–scaled items that gauged how much—with responses ranging from "not at all" to "very much"—they agreed with the following statements about school and family: (1) You are close to people at school, (2) You are part of your school, (3) You are happy to be at school, (4) The teachers treat you fairly, (5) Your parents care about you, (6) People in your family understand you, (7) You and your family have fun together, and (8) Your family pays attention to you. These items were combined into an average summed scale, and the alpha reliability for this scale was 0.70. Higher scores on this scale reflect greater levels of bonding to family and school.

Some research also indicates that familial religious beliefs and participation may provide a protective factor from violence (see Hawkins et al., 1998). To assess the importance of religion in the household, parents were asked on a four-point Likert-type scale the relative importance—with response options ranging from "very important" to "very unimportant"—that the family practice religion.

Extant literature suggests that youth residing in married-parent households are at reduced risk for violence and other negative life outcomes (McCord, Widom, and Crowell, 2001). Therefore, we included a dummy variable to indicate whether the responding parent was legally married (= 1) or living an alternative familial arrangement (= 0).

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[12] Because of insufficient counts of African Americans and Asians across the sampled neighborhoods, we could not parse out the correlation between these ethnic groups from that of individual or family attributes and neighborhood factors that are the focus of this analysis.

[13] The average interitem covariance for this summed index was 1.41 (alpha = 0.75) with an average correlation coefficient of 0.50.

Finally, to control for the relative influence of local kinship ties, a dummy variable was included that measured whether (= 1) or not (= 0) any relatives or in-laws live in their neighborhood. We also include the number of years that the respondents had lived in the neighborhood as a measure of household stability, because frequent moving can be a signal of a number of risk factors for youth (McCord, Widom, and Crowell, 2001).

Neighborhood Attributes

The relative importance of neighborhood context in explaining dissimilarities in exposure to youth violence is at the heart of this study. We incorporated a set of neighborhood-specific measures derived from extant literature.[14] Prior research, for example, suggests that perceptions of neighborhood disorder differ significantly between high- and low-crime and -violence areas (Skogan, 1990). There is some scholarly debate about the relative importance of disorder as a distinct concept from crime and its meaning across racial and ethnic groups (see, e.g., Sampson and Raudenbush, 1999, 2004; Skogan, 1990; Taylor, 2001). To measure disorder, respondents were asked on a three-point scale—with response options ranging from "big problem" to "not a problem"—their view of 10 signs of physical and social disorder in their neighborhoods, including (1) litter or trash in the streets, (2) graffiti, (3) vacant housing or vacant storefronts, (4) poorly maintained property, (5) abandoned cars, (6) drinking in public, (7) selling or using drugs, (8) homeless people or street panhandlers causing disturbances, (9) groups of teenagers hanging out on street corners without adult supervision, and (10) people fighting or arguing in public. The 10 items were combined into an average summed scale, and the alpha reliability for the scale was 0.93.[15] Higher scores indicated that respondents perceived more social and physical disorder in their neighborhood.

Neighborhood-effects research also indicates that the level of area social cohesion is linked to violence and crime, among other negative health outcomes (see Sampson, Morenoff, and Gannon-Rowley, 2002, for a review). This study attempted to assess the level of perceived neighborhood social cohesion by asking respondents 15 items related to this concept, now commonly refered to as *collective efficacy*. The level of neighborhood social cohesion was assessed from nine items that asked parents their level of agreement—with responses ranging from "strongly agree" to "strongly disagree"—the following statements about their neighborhood: (1) People around here are willing to help their neighbors; (2) This is a close-knit neighborhood; (3) People in this neighborhood can be trusted; (4) People in this neighborhood generally don't get along with each other; (5) People in this neighborhood do not share the same values; (6) Parents in this neighborhood know their children's friends; (7) Adults in this neighborhood know who the local children are; (8) Parents in this neighborhood generally know each other; and (9) People in this neighborhood are willing to do favors for each other, such as watching each other's children, helping with shopping, or watching each other's houses when someone is out of town. The level of perceived informal social control in the neighborhood was assessed from six items that asked residents how likely—with responses ranging from "very likely" to "very unlikely"—that neighbors would do something if (1) children were skipping school and hanging out on a street corner, (2) children were spray-painting graffiti on a sidewalk or building, (3) children were showing disrespect to an adult, (4) a fight broke out in

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14 *Neighborhood* was defined to respondents to include the block or street on which they live and several blocks or streets in each direction.

15 "Don't know" responses were recoded into the middle range for these items.

public, (5) a youth gang was hanging out on the street corner selling drugs and intimidating people, and (6) a local school near home was threatened with closure due to budget cuts. Consistent with previous work (Sampson, Morenoff, and Raudenbush, 2005), these two scales were closely associated ($r = 0.60$; $p < 0.01$) and were combined into a single average summed scale, with higher scores representing lower levels of collective efficacy. The alpha reliability for this scale was 0.86. The scores on this scale were reverse-coded so that higher scores on the scale would reflect higher levels of neighborhood collective efficacy.

Summary of Measures

The basic descriptive statistics for the measures of individual-, family-, and neighborhood-level attributes are displayed in Table 4.5. Seventy-seven percent of respondent households were married and, on average, had lived in the current neighborhood for 14 years. The average age of youth respondents was 15.5. A comparison of these descriptive data indicates that few differences between those living in BID and non-BID areas were observed. A significantly higher proportion of respondents in BID households were immigrant, Latino, and of lower socioeconomic status. In addition, BID respondents reported slightly lower levels of collective efficacy ($p < 0.10$) than those living in comparison areas.[16] These differences in samples suggest

Table 4.5
Descriptive Statistics (Means) of Key Measures

	Mean (SD)					
Variable	Overall (*n* = 737)	BID (*n* = 362)	Non-BID (*n* = 375)	Group Difference (T-Test)	P-Value	Score Range
Demographics						
Immigrant household (%)	58 (49)	62 (49)	55 (50)	2.02	0.04	0–1
Latino (%)	55 (50)	58 (49)	51 (50)	1.96	0.05	0–1
SES	3.06 (1.37)	2.95 (1.38)	3.16 (1.35)	2.09	0.03	1–6
Age of teen (years)	15.56 (1.15)	15.56 (1.21)	15.56 (1.11)	0.07	0.94	14–17
Individual/family attributes						
Married (%)	67 (47)	67 (47)	67 (47)	0.01	0.99	0–1
Social bonds	4.15 (0.54)	4.14 (0.58)	4.16 (0.51)	0.46	0.64	2–5
Religion	1.15 (0.83)	1.51 (0.86)	1.49 (0.81)	0.29	0.77	1–4
Kinship network (%)	22 (41)	23 (42)	20 (40)	0.92	0.36	
Years in neighborhood	13.85 (9.88)	13.95 (8.84)	13.76 (9.94)	0.26	0.80	0–54
Neighborhood attributes						
Disorder	1.79 (0.63)	1.81 (0.65)	1.77 (0.62)	1.04	0.30	1–3
Collective efficacy	2.21 (0.47)	2.24 (0.46)	2.18 (0.49)	1.73	0.08	0.8–3.87

[16] Our sampling approach matches households in BID neighborhoods to non-BID neighborhoods exposed to similar environmental attributes, but several years after the establishment of several BIDs. Therefore, it is possible that we have matched a set of BID neighborhoods to areas that are more similar after BIDs have fostered change than they were before.

the need to adjust for these differences in our subsequent analysis of BID effects on community-level processes and youth violence. On average, however, the distribution of the observed features of each household were essentially equivalent between those living in BIDs compared to non-BID comparison areas, suggesting that the sample-allocation algorithm was an effective tool in sampling equivalent households across areas.[17] The close equivalence of BID and non-BID areas in the average perception of disorder indicates that the BID treatment areas are not markedly different from comparison areas in perceptions of the social and physical disorder or measures of collective efficacy (as outlined in our theoretical model in Figure 1.1 in Chapter One of BID effects on youth violence). We return to a discussion of this issue in the summary section of this chapter.

Analytic Plan

The first step in our analysis is to estimate the effect of individual- and neighborhood-level features on youth violence, using variance components models. First, we estimate a multilevel model[18] that takes into account the hierarchical structure of both victimization outcomes and respondent households being nested within BID and non-BID neighborhoods. Second, we construct neighborhood-specific estimates of the incidence of youth violence using a neighborhood cluster (NC) approach that combines adjacent census tracts into large enough geographic units to estimate between-neighborhood differences with reasonable precision. Finally, we compare the effects of living in different BID areas to assess the relative heterogeneity in BID effects on youth-violence outcomes.

For the first analysis, we construct a multilevel model of youth violence according to the following form:

$$\eta_{ijk} = \beta_0 + x_j\beta + \omega_k\gamma + \sigma_i. \tag{4.2}$$

Here, η_{ijk} represents the log odds ratio of experiencing a violent victimization item i (witnessing neighborhood violence is the reference category) or the $\log\left(P\left(Y_{ikj}=1\right)/P\left(Y_{ikj}=0\right)\right)$ for individual household j residing in census tract k. In Equation 4.2, $x_j\beta$ represents the vector of individual, family, and neighborhood attributes (immigrant or ethnic status, SES, age of teen, social bonds, BID neighborhood, disorder, collective efficacy), $\omega_k\gamma$ represents the random intercept term that shifts the model up or down according to each neighborhood location, and σ represents a fixed effect term for each youth-violence item i (see Sampson, Morenoff, and Raudenbush, 2005, for a similar model). Thus, β_0 represents the intercept, or the average effect on youth violence, adjusting for individual, family, neighborhood attributes, and BID neighborhood (yes/no), and e_{jk} represents the error structure that is composed of both individual (fixed) and neighborhood census tract–level (random) variance that is normally

[17] A more conservative Kolmogorov-Smirnov test for equality of distribution functions between the two groups found only a significant difference from 0 for SES (D = 0.1076, p = 0.03).

[18] These models are also referred to as hierarchical linear models in the field of education statistics (Raudenbush and Bryk, 2002) or variance components models in biostatistics and economics (McCulloch and Searle, 2001).

distributed with mean 0 and variance σ^2.[19] This model simply compares youth-violence outcomes for youth living in BID areas to those in non-BID comparison areas after adjusting for average differences in individual and household features and neighborhood features.

To examine whether the neighborhood-related features operate at the group level separately from individual- or family-related features, we extend the specification of Equation 4.2 and add random coefficients for the neighborhood attributes of disorder and collective efficacy $\left(\omega_k\gamma = disorder_k\gamma + efficacy_k\gamma\right)$ to the random intercept specification according to the following form:[20]

$$\eta_{ijk} = \beta_0 + x_j\beta + \omega_{ok} + \omega_k\gamma + \sigma_i. \tag{4.3}$$

To test the sensitivity of these estimates to the small number of households in each neighborhood census tract, we also constructed a second set of analysis based on estimated NCs. To create these NCs, we used the following four rules. First, census tracts were clustered among BID and non-BID tracts separately. Second, census tracts were clustered together if they were geographically contiguous, with a maximum of four census tracts making up any one NC. Third, areas in which five tracts bordered each other were divided so that no single tract could have more than two-thirds the balance of the total number of household interviews. Fourth, NCs for BID areas were chosen so that they would cluster around their most proximal BID location. Applying these rules resulted in a total of 71 NCs representing 587 households.

It is clear that several trade-offs were made to generate reasonable estimates from these NCs. These estimates, therefore, should not be interpreted as representing actual neighborhoods in Los Angeles. Rather, the NCs should be interpreted as geographically proximal census tracts with sufficient enough sample to yield an area estimate.[21] It is worth noting that the definition of *neighborhood* in the household survey more closely applies to an actual census tract and not these larger NC aggregations.

To construct NC estimates, we followed the same logic and estimated a variance components model that is identical to that specified in Equation 4.2, but the random intercept was estimated at the cluster level and the error structure is composed of both individual and household features and BID location (fixed) and NC-level (random) variance accordingly. This specification allows us to examine the effects observed in household, family, BID locations, and

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[19] These models were estimated using Stata 10.0, where the distribution of the random effects is assumed to be Gaussian and the conditional distribution of the response function (violence) is assumed to be Bernoulli, with probability of endorsing violence determined by the logistic cumulative distribution function (CDF). The log likelihood for this model has no closed form, so it is approximated in Stata by an adaptive Gaussian quadrature (see Stata Corporation, 2005).

[20] It is also possible to extend this model and add a random intercept for individual respondents, thereby allowing the effects of household and neighborhood attributes to vary freely within individual respondents and neighborhood locations. Such a model, however, would have to be based on the theory that there are different effects of, for example, SES and social bonds on the probability of a respondent endorsing different violent-victimization items that are not confounded with the observed variables. We found such a theory highly improbable. We did, however, specify this three-level error structure and estimated random intercept terms at the individual and neighborhood levels. The results were not substantively different from the coefficients reported in the following section using our more conservative specifications.

[21] Unlike those in Chicago and other older cities, L.A. neighborhoods are not presently defined by the city planning agency by small area locations. Instead, L.A. neighborhoods are defined by larger geographic areas (e.g., neighborhood council areas) that make up diverse demographic and economic compositions.

perceived environment attributes of neighborhoods $\left(x_j\beta\right)$ as conditioned by the demographic compositions and structural features of the sampled neighborhoods $\left(\omega_k\gamma\right)$.

Results

The results from the multilevel logistic regression analysis are reported in odds ratios (ORs) and 95-percent confidence intervals (CIs). Table 4.6 examines the direct association between BIDs and youth violence, as well as the role of neighborhood mediators of collective efficacy and disorder (as noted in Figure 1.1 in Chapter One), controlling for individual- and family-related covariates noted in Equation 4.2. There is no direct association between BIDs and youth violence. The results, however, indicate that immigrant status, social bonds, neighborhood kinship networks, perceptions of neighborhood disorder, and collective efficacy are significantly associated with youth-violence victimization.

Model 1 presents estimates for individual- and neighborhood-level variables, contrasting immigrants with all others. The results indicate that several of these individual- and family-related covariates are significantly associated with the odds of experiencing youth violence.

Table 4.6
Individual- and Neighborhood-Level Covariates of Youth Violence

	Model 1			Model 2			Model 3		
Variable	OR	95% CI	P-Value	OR	95% CI	P-Value	OR	95% CI	P-Value
Immigrant household	0.59	0.37–0.93	0.023	—	—	—	—	—	—
Latino	—	—	—	2.08	1.26–3.48	0.004	4.31	2.29–8.10	<0.001
Immigrant × Latino	—	—	—	—	—	—	0.33	0.18–0.63	0.001
SES	0.90	0.76–1.07	0.241	1.12	0.94–1.35	0.200	1.05	0.88–1.27	0.550
Age of teen	0.92	0.80–1.06	0.276	0.94	0.81–1.08	0.362	0.93	0.81–1.08	0.334
Married	0.99	0.68–1.42	0.938	0.84	0.58–1.21	0.348	0.91	0.63–1.31	0.627
Social bonds	0.43	0.32–0.56	<0.001	0.41	0.30–0.55	<0.001	0.39	0.29–0.54	<0.001
Religion	1.11	0.89–1.36	0.366	1.17	0.95–1.45	0.141	1.15	0.93–1.42	0.194
Kinship network	2.38	1.61–3.49	<0.001	2.01	1.37–2.99	<0.001	2.19	1.48–3.26	<0.001
Years in neighborhood	0.99	0.97–1.01	0.410	1.00	0.98–1.01	0.892	0.99	0.97–1.01	0.672
BID	1.30	0.85–2.01	0.221	1.23	0.79–1.92	0.347	1.19	0.77–1.86	0.418
Disorder	1.45	1.05–2.01	0.023	1.19	0.87–1.63	0.264	1.34	0.97–1.86	0.08
Collective efficacy	0.59	0.39–0.88	0.011	0.59	0.39–0.90	0.019	0.57	0.38–0.86	0.008
X^2 [a]	30.3		<0.001	34.3		<0.001	32.5		<0.001

NOTE: n = 3,070 item responses, 614 households, 178 census tracts.

[a] X^2 = Likelihood ratio test comparing multilevel variance component to single variance logistic regression.

Specifically, residing in an immigrant household reduces the odds of experiencing youth violence by 41 percent compared to those of nonimmigrants (OR = 0.59; 95% CI = 0.37–0.94). Youth with increased bonds to family and school are also associated with a reduced risk of experiencing youth violence. Greater social bonds were associated with 0.43 odds of victimization (95% CI = 0.32–0.56). Specifically, a standard deviation increase in one's reported social bonds to family and school reduced the odds of experiencing youth violence by 0.63.[22] Religion, age of the teen, and years that the family has lived in the neighborhood had no association with youth violence. Neighborhood kinship networks were associated with an increased risk for youth violence (OR = 2.38; 95% CI = 1.61–3.49). In terms of neighborhood features, both perceived social and physical disorder and collective efficacy are associated with youth violence. The results indicate that youth violence is 1.45 times higher in areas with increased disorder (95% CI = 1.05–2.01). Converting the effect size into standard-deviation units, we see that a one standard-deviation increase in disorder is associated with a 1.27 increase in odds of violence. An increased level of collective efficacy in a respondent's neighborhood was associated with a 41-percent decrease in the odds of youth violence (OR = 0.59; 95% CI = 0.39–0.88). Living in a BID neighborhood, however, is not significantly associated with experiencing more or less youth violence.

Model 2 includes the same set of covariates but contrasts Latinos with all other racial and ethnic groups, thus allowing us to ascertain whether the effect of being Latino is distinguishable from that of being an immigrant. This model indicates that Latinos had 2.08 times the risk of experiencing youth violence relative to those of other ethnic groups (e.g., whites, African Americans, Asians) (OR = 2.08; 95% CI = 1.26–3.48). The effects of social bonds (OR = 0.41; 95% CI = 0.30–0.55) and neighborhood kinship networks (OR = 2.01; 95% CI = 1.37–2.99), consistent with the previous model, are significantly associated with youth violence. The effect of perceived social and physical disorder in one's neighborhood, however, decreases to a statistically insignificant level. This finding suggests that some partialling effect for neighborhood disorder occurs when one contrasts Latinos with other ethnic groups. These findings, however, are not surprising, given that Latinos are disproportionately situated in lower-SES areas in Los Angeles. Collective efficacy, however, continues to be significantly associated with youth violence (OR = 0.59; 95% CI = 0.39–0.90). Again, BID locations produce no systematic difference in the odds of experiencing youth violence.

Given that a high proportion of immigrant households in this sample are also Latino and that the two covariates, when entered separately, had different effects in opposite directions, this provides evidence for a nonlinear relationship. Model 3 captures the potential nonlinear relationship between ethnicity and youth violence by including the dummy variable to capture different intercepts and an interaction term (Latino x immigrant) to estimate different slopes. The results from model 3 indicate a significant interaction term and suggest that youth from immigrant households of Latin American origin have significantly reduced odds of more serious forms of youth violence relative to non-Latinos (OR = 0.33; 95% CI = 0.18–0.63); whereas nonimmigrant Latino youth are at increased odds of experiencing more serious forms of youth violence (OR = 4.31; 95% CI = 2.29–8.10) relative to non-Latinos. These findings are consistent with work by Sampson, Morenoff, and Raudenbush (2005) that found immigration status to be associated with significantly reduced odds of committing youth violence in the

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[22] $\text{Exp}(Bx_{SD})$.

community, even when compared with youth residing in the same neighborhoods with similarly situated social and economic circumstances. BIDs, however, have no systematic effect on youth-violence experience.

The results from model 3 also indicate that increased perceptions of neighborhood disorder are associated with a marginal increase in the seriousness of youth violence (OR = 1.34; $p < 0.10$) and that collective efficacy continues to be significantly associated with reduced odds of experiencing more serious forms of youth violence. A one-unit decrease in reported collective efficacy is associated with a 43-percent reduction in the odds of youth violence (OR = 0.57; 95% CI = 0.38–0.86).

Because there has been some debate about the relative importance of disorder itself in creating signals of neighborhood incivility and increasing the likelihood that crime and violence will flourish (J. Wilson and Kelling, 1982; Sampson and Raudenbush, 1999), we also estimated models that included disorder and collective efficacy in separate equations. The results indicated that disorder (OR = 1.66; 95% CI = 1.22–2.25) and collective efficacy (OR = 0.51; 95% CI = 0.34–0.74)[23] are more correlated with youth violence when estimated separately than together, suggesting that there is some partialling effect whereby collective efficacy and disorder offset each other in their associations with youth violence.[24]

Neighborhood-Level Estimates of Collective Efficacy and Disorder

The models estimated in Table 4.6 indicate that a substantial improvement of fit occurs when the error structure of youth violence allows for between-neighborhood variation. This suggests that there may be distinct heterogeneity in the neighborhood-level mechanisms associated with youth violence. To further refine the estimate of the direct association between collective efficacy and disorder on youth violence (as noted in our theoretical model displayed in Figure 1.1 in Chapter One), we estimated the models that included random-effect specifications that allow these neighborhood features to operate at the neighborhood census tract–level independently of household features.

The results from this model are displayed in Table 4.7. For ease of exposition, the individual-level covariates are not included in this table.[25] Collective efficacy is significantly associated with youth violence across all model specifications. In contrast, neighborhood disorder is no longer significantly ($p < 0.05$) associated with youth violence when its coefficient is specified at the census-tract level. However, it is worth noting that estimating a random-effect coefficient for collective efficacy and disorder imposes a heroic assumption on the structure of the correlation between neighborhood-level attributes and youth violence. In effect, these models assume that the error structures of collective efficacy and disorder are independent and distinguishable from household (individual and family) attributes or that the average perceptions of disorder and collective efficacy at the neighborhood level occur independently of our household-related features, such as ethnicity, SES, and social bonds. Given that individuals are not allocated randomly to neighborhoods in Los Angeles and that social and economic circumstances (e.g., income level, ethnicity, housing practices) are correlated with where individuals

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[23] The estimated OR increases by 14 percent for disorder and 17 percent for collective efficacy when entered separately as opposed to together.

[24] We also estimated models allowing for a shared covariance between collective efficacy and disorder at the neighborhood census-tract level. The results were substantively the same as those reported here and yielded no improvement in model fit.

[25] The effects of individual and household items remained substantively the same at those reported in Table 4.7.

Table 4.7
Neighborhood-Level Estimates of Youth Violence

	Model 1			Model 2			Model 3		
Variable	OR	95% CI	P-Value	OR	95% CI	P-Value	OR	95% CI	P-Value
Disorder	1.39	0.95–2.04	0.086	1.16	0.80–1.68	0.428	1.28	0.87–1.87	0.206
Collective efficacy	0.65	0.42–1.02	0.059	0.65	0.41–1.02	0.061	0.62	0.39–0.97	0.037
X^{2a}	0.839		NS	–0.119		NS	1.09		NS

NOTE: *n* = 2,935 item responses, 587 households, and 178 neighborhood census tracts. Controlling for individual- and family-related variables shown in Table 4.6.

[a] X^2 = Likelihood ratio test comparing random effects that includes coefficients for collective efficacy and disorder to random intercept–only specification. NS = not statistically significant at $p < 0.10$ level.

decide to live, it is reasonable to suspect that such models as these do not realistically estimate a unique neighborhood-level effect.[26] A likelihood ratio test comparing the models estimated in Tables 4.6 and 4.7 indicates no significant improvement in fit, suggesting that estimating collective efficacy and disorder at the neighborhood level does not improve the approximation of youth violence.

Neighborhood Clusters

The NC estimates are presented in Table 4.8 in an attempt to investigate the potentially larger geographic grouping effects across areas. Individual- and family-related attributes were also estimated but, for ease of exposition, are not included in this table. The results are consistent with those displayed in Table 4.6: Disorder and collective efficacy are associated with the odds of youth violence. The 95-percent CI on these estimates, however, crosses 0 and suggests that the relative association of these attributes diminishes in both strength and statistical inference ($p < 0.10$) when one includes a random-effect intercept that allows for between-NC variance. The estimates from the NC model indicate that BIDs have no significant direct association with youth violence.

Table 4.8
Neighborhood-Cluster Estimates of Youth Violence

Variable	OR	95% CI	P-Value
Disorder	1.34	0.99–1.83	0.06
Collective efficacy	0.72	0.50–1.05	0.09
X^{2a}	6.38*		

NOTE: *n* = 2,935 item responses, 587 households, 71 NCs.

[a] X^2 = Likelihood ratio test comparing multilevel variance component to single variance logistic regression.
* $p < 0.01$

[26] The same issue could also be argued for a number of neighborhood-level studies that attempt to estimate group effects separately from individual-level effects (see, e.g., Hipp, 2007).

Individual BID Effects

Our previous analysis of BID budget and interview data and our observations of BID areas suggested that there is significant heterogeneity in BID priorities, locations, community conditions, and relationships with city agencies, including the police. It is possible that the lack of BID effects on youth violence is symptomatic of the differences between BIDs, such that some BIDs are located in areas with youth-violence levels at different ends of the distribution of these outcomes. Thus, some BIDs may be directly associated with reduced rates of youth violence through their community-change efforts, while others are not actively engaged enough in the community to have an effect. To explore this potential heterogeneity in BID areas, we also estimated a model that included individual coefficients for different BIDs, thus providing a further refinement to our theoretical model of BID effects on youth violence. The results from this model are displayed in Table 4.9. It is worth noting that the heterogeneity in BID areas

Table 4.9
BID Estimates of Youth Violence

	Model 1			Model 2			Model 3		
Variable	OR	95% CI	P-Value	OR	95% CI	P-Value	OR	95% CI	P-Value
Latino	3.77	2.10–6.78	0.000	1.83	1.15–2.91	0.010	—	—	—
Latino × immigrant	0.36	0.20–0.64	0.001	—	—	—	—	—	—
Immigrant	—	—	—	—	—	—	0.65	0.42–0.99	0.044
Age of teen	0.89	0.78–1.02	0.084	0.90	0.79–1.03	0.120	0.89	0.78–1.01	0.089
Married	0.93	0.66–1.29	0.652	0.87	0.63–1.21	0.413	0.99	0.71–1.38	0.98
Social bonds	0.45	0.35–0.59	0.000	0.47	0.36–0.61	0.000	0.48	0.37–0.62	0.000
Religion	1.08	0.88–1.32	0.461	1.11	0.91–1.35	0.303	1.07	0.87–1.30	0.499
SES	1.00	0.84–1.19	0.982	1.05	0.88–1.25	0.578	0.87	0.73–1.01	0.083
Years in neighborhood	1.00	0.98–1.01	0.606	1.00	0.98–1.02	0.897	0.99	0.98–1.01	0.431
Kinship network	1.99	1.40–2.84	0.000	1.88	1.32–2.66	0.000	2.10	1.48–2.98	0.000
Disorder	1.30	0.96–1.75	0.094	1.21	0.90–1.63	0.204	1.42	1.04–1.92	0.024
Collective efficacy	0.57	0.08–0.84	0.004	0.60	0.41–0.86	0.006	0.60	0.42–0.87	0.007
BID 1	0.90	0.36–2.29	0.830	1.07	0.43–2.68	0.877	1.19	0.48–2.92	0.713
BID 3	0.86	0.31–2.38	0.771	1.03	0.38–2.75	0.956	1.07	0.39–2.86	0.896
BID 4	1.84	0.45–7.47	0.394	1.77	0.44–7.21	0.425	1.92	0.48–7.64	0.355
BID 9	0.70	0.20–2.42	0.576	0.63	0.18–2.17	0.464	0.78	0.22–2.69	0.698
BID 10	1.63	0.58–4.61	0.353	1.82	0.66–5.06	0.250	1.67	0.61–4.58	0.316
BID 11	1.66	0.79–3.49	0.178	1.72	0.82–3.58	0.149	2.09	1.01–4.34	0.046
BID 12	1.50	0.59–3.84	0.397	1.94	0.80–4.73	0.144	2.02	0.82–4.95	0.126
BID 15	1.68	0.62–4.55	0.304	1.52	0.57–4.10	0.405	1.75	0.65–4.72	0.267
BID 16	1.81	0.87–3.74	0.111	1.91	0.92–3.93	0.081	1.76	0.85–3.65	0.128

Table 4.9—Continued

	Model 1			Model 2			Model 3		
Variable	**OR**	**95% CI**	**P-Value**	**OR**	**95% CI**	**P-Value**	**OR**	**95% CI**	**P-Value**
BID 17	9.64	2.92–31.82	0.000	9.12	2.79–29.88	0.000	8.84	2.67–29.21	0.000
BID 18	0.81	0.18–3.53	0.776	0.76	0.17–3.34	0.718	0.83	0.19–3.62	0.803
BID 20	0.82	0.19–3.55	0.792	0.83	0.19–3.56	0.798	0.66	0.15–2.86	0.582
BID 21	1.45	0.78–2.68	0.237	1.51	0.82–2.80	0.188	1.39	0.75–2.56	0.297
BID 22	0.56	0.17–1.93	0.362	0.65	0.19–2.21	0.488	0.73	0.22–2.47	0.612
BID 23	6.97	1.76–27.60	0.006	6.50	1.64–25.79	0.008	6.26	1.61–24.4	0.008
BID 24	0.71	0.09–5.52	0.743	0.67	0.09–5.18	0.699	0.63	0.08–4.85	0.655
BID 27	1.81	0.88–3.75	0.109	1.81	0.87–3.74	0.111	1.8	0.87–3.73	0.113
BID 29	0.19	0.03–1.50	0.116	0.18	0.02–1.42	0.104	0.21	0.02–1.58	0.129
BID 30	0.88	0.51–1.50	0.636	0.85	0.50–1.45	0.545	0.91	0.53–1.57	0.746
X^{2a}	204*			203*			200*		

NOTE: *n* = 2,975 item responses, 595 households.

[a] X^2 = Likelihood ratio test comparing intercept-only model. * = $p < 0.001$.

precluded the ability to estimate random-effect specifications. In other words, there was not a large enough sample size in each BID area to assess BID effects separately from neighborhood grouping effects. As a result, the model displayed represents a simple logistic regression model that corrects for respondents being clustered in distinct BID areas but not distinct census tracts. The results from these models include 19 of the 30 BIDs that had sufficient sample size to estimate unique BID effects.

The results from the model that include individual BID effects suggest substantial differences across BID catchment areas in the odds of a youth household member experiencing more-serious violent victimization. Some BID areas indicate an increased risk compared to non-BID areas, whereas other BID locations suggest a reduced risk. However, it is worth noting that the sample sizes in these areas are sufficiently small that the point estimates vary substantially, suggesting that caution should be used in interpreting these estimates of BID areas. Ethnicity, social bonds, kinship networks, and collective efficacy remain significantly associated with serious youth violence. These findings, therefore, suggest a consistent picture with the previous models in noting the importance of ethnicity, family-related features, and neighborhood environments in explaining a significant amount of the incidence of more-serious forms of youth violence. Importantly, across all model specifications, the neighborhood feature of collective efficacy is significantly associated with the odds of experiencing youth violence, suggesting that this feature of neighborhood life is important even when one includes statistical controls for specific BID areas. Again, we see no direct association between BIDs and youth violence in this baseline survey.

Neighborhood Mechanisms

Our findings indicated that BIDs are not significantly associated with youth violence. A significant proportion of individual/household differences in youth-violence experience are, however, associated with neighborhood location and perceptions of disorder and collective efficacy in one's neighborhood. The sampling algorithm used in this study was designed to assess households in BID and non-BID areas so that they were exposed to similar neighborhood environments. The algorithm was not designed to assess the overall city-level effect of neighborhood mechanisms on youth violence. This raises the question of whether neighborhood perceptions of disorder and collective efficacy are merely proxies for structural differences related to poverty, residential stability, and demographic structures of the sampled neighborhoods. For example, it is possible that residents with a high percentage of youthful residents (under the age of 25) are more likely to perceive that there are problems of disorder and a lack of collective efficacy in their neighborhoods.

To assess whether disorder and collective efficacy are proxies for systemic structural differences between neighborhoods or are themselves important covariates, we estimated an additional set of models that included neighborhood factors related to concentrated poverty,[27] residential stability (percentage of residents living in the neighborhood for five years or longer), age (percentage of males under 25 years old) and Latino or immigrant concentration (average of percentage of Latino and foreign-born residents), population density (residents per square mile), as well as the violent-crime rate per 100,000 residents (natural log of the average total 2004–2005 crime reports for murder, rape, robbery, and aggravated assault). Because these structural features of concentrated poverty, age and ethnic distributions, residential stability, and population density are highly correlated with each other (average $r > 0.60$; see Table 4.10), we estimate separate models for each covariate.

The results from these models are displayed in Table 4.11. Models 1 to 5 show that the direct effects of collective efficacy and disorder remain statistically significant predictors of youth violence even after introduction of neighborhood-level covariates for level of concentrated disadvantage, percentage of males under 25, percentage foreign born or Latino, level of residential stability, population density, and crime in each neighborhood. The direct effect of collective efficacy ranges between an OR of 0.61 and 0.62 depending on the

Table 4.10
Bivariate Correlations Among Neighborhood Factors

Factor	Correlation					
Concentrated disadvantage	1.00					
Percentage males under age 25	0.69	1.00				
Latino/immigrant concentration	0.75	0.83	1.00			
Residential stability	–0.72	–0.48	–0.65	1.00		
Population density	0.60	0.42	0.60	–0.71	1.00	
Average violent-crime rate (log)	0.56	0.50	0.54	–0.41	0.19	1.00

[27] Concentrated poverty represents an index of the percentage of female-headed households, percentage unemployed, percentage living below the poverty line, and percentage receiving welfare. A principal-component analysis indicated that 66 percent of the variation across all four measures could be explained by a single component (Eigenvalue = 2.63).

Table 4.11
Neighborhood Predictors of Youth Violence

Variable	OR	95% CI	P-Value
Model 1 (concentrated disadvantage)			
Disorder	1.42	1.03–1.98	0.031
Collective efficiency	0.62	0.41–0.93	0.020
Concentrated disadvantage	1.10	0.93–1.29	0.279
Violent-crime rate	1.03	0.66–1.61	0.890
X^2	29.86*		
Model 2 (percentage of males under 25)			
Disorder	1.44	1.04–1.99	0.029
Collective efficiency	0.61	0.40–0.90	0.017
Percentage of males under 25	1.01	0.95–1.07	0.732
Violent-crime rate	1.12	0.73–1.72	0.593
X^2	30.22*		
Model 3 (immigrant concentration)			
Disorder	1.43	1.04–1.98	0.030
Collective efficiency	0.61	0.41–0.93	0.020
Immigrant concentration	1.44	0.30–6.80	0.646
Violent-crime rate	1.11	0.72–1.71	0.640
X^2	30.13*		
Model 4 (residential stability)			
Disorder	1.43	1.04–1.98	0.030
Collective efficiency	0.61	0.51–0.93	0.019
Residential stability	0.56	0.14–2.21	0.409
Violent-crime rate	1.09	0.73–1.66	0.654
X^2	30.02*		
Model 5 (population density)			
Disorder	1.43	1.03–1.98	0.030
Collective efficiency	0.62	0.41–0.92	0.018
Population density	1.13	0.87–1.46	0.368
Violent-crime rate	1.14	0.77–1.71	0.511
X^2	30.29*		

NOTE: Controlling for individual- and family-related variables shown in Table 4.6. *n* = 3,070 item responses, 614 individual households, 178 census-tract neighborhoods. X^2 = Likelihood ratio test comparing multilevel variance component to single variance logistic regression. * $p < 0.01$.

specification and is consistently a significant predictor of youth violence across all specifications. Similarly, perception of disorder in one's neighborhood is significantly associated with youth violence across all models and changes only slightly across specifications (OR 1.42–1.43).

These findings indicate that, even when we include neighborhood-level covariates associated with concentrated poverty, residential stability, population density, Latino and immigrant concentration, males under age 25, and average level of violent crime reported in the previous two years, perceived neighborhood environments remain important predictors of youth violence. Importantly, these associations are not a reflection of underlying structural differences between neighborhoods sampled.

Limitations

BIDs are not randomly allocated to neighborhoods in Los Angeles. Despite our best effort to allocate our sample in such a way as to balance the exposure of respondents to households to neighborhood attributes and achieve a comparable set of households in terms of observed features (e.g., age structure, racial and ethnic composition, residential stability, and population density of neighborhood census tracts), it is reasonable to suspect that BIDs are not exogenous to the observational data collected in this study. A comparison of BID and matched area (see Table 4.5) households indicated that the two groups differed only along a few observable features (e.g., SES, immigration status, percentage Latino). To remove the potentially confounding effects of these individual-level attributes, we estimated the series of multilevel models to effectively control for these between-group differences. A key assumption of this modeling approach, however, is that of *ignorability*. In other words, one has to believe that the features we observed effectively create a set of equivalent comparison groups, so that the only remaining difference is the assignment to a BID or non-BID neighborhood. It is quite possible that there are systematic differences between households in BID areas and non-BID comparison areas that we did not measure with our household survey or reliance on neighborhood census-tract data. Our sampling approach may have also overmatched residential areas (or matched on the wrong time periods) by constructing a comparison group of areas in which residents are, on average, similarly situated to BID residents years after the positive benefits of established BIDs have transpired.

We also explored whether we could effectively predict observable differences between living in a BID area and a comparison area along the attributes collected in our survey. As intended with our sampling design, the analysis indicated that the observed individual- and family-related attributes (e.g., SES, ethnicity, social bonds, religion) were not predictive of living in a BID area. Specifically, estimating the probability of living in a BID location by these observed features using logistic regression did not improve the predicted probability of living in a BID area over what one would get by using the intercept only, or the average case. These findings suggest that the sampling algorithm was effective in removing the majority of the observed between-group differences between respondents living in BID areas and those living in comparison areas.

Summary

This chapter set out to examine the relationship between BIDs, individual and family household features, and neighborhood environments on youth violence. We found that youth in immigrant households are protected from experiencing youth violence compared to youth living in similarly situated nonimmigrant households. In addition, our analysis indicates that the degree to which youth feel close bonds to family and school is consistently related to the odds of experiencing violence.

The current findings also provide a replication of seminal work on neighborhood effects in Chicago, Illinois, that found a significant association between neighborhood perceptions of collective efficacy and household victimization outcomes (Sampson, Raudenbush, and Earls, 1997). The current study extends this neighborhood-based research by finding similar effects of neighborhood-related processes on youth-violence outcomes in Los Angeles, in a different decade and with a heavier concentration of youth of Latin American ancestry. These findings are important because they indicate that, within the context of these Los Angeles neighborhoods, individual and family factors are not the only mechanisms that are important in explaining a youth's likely exposure to violence. Rather, it appears that neighborhood environments also influence the risk that a youth will experience more-serious forms of violent victimization.

On average, neighborhood environments and youth-victimization outcomes are not related to living in or around a BID. Given that youth-violence outcomes are relatively rare and that the budget and spending sizes of many BIDs are relatively small, it is not surprising that our findings suggest no systematic BID effects on youth violence. Rather, neighborhood mechanisms related to disorder and collective efficacy, or the willingness of neighbors to watch out for each other and share a sense of collective bonds, are important predictors of youth violence in both BID and non-BID neighborhoods.

Since we relied only on baseline data, however, we are limited in the causal inference we can make linking BIDs to neighborhood mechanisms associated with youth violence. For example, it is possible that BID effects are observable only over time as they become more fully developed, implement private security, foster greater economic development, and assist in the improvement of their local built environments. A more dynamic neighborhood-change process that affects youth may unfold over time that we cannot capture in a cross-sectional analysis when BID and comparison areas have few environmental differences (see Sampson, 2008, for a related discussion on the Moving to Opportunities experiments).

Assessing changes in crime and violence before-after the establishment of BIDs would be a stronger test of their effect on community-level change and violence. Indeed, previously published research on BIDs in Los Angeles found a significant correlation between their adoption and a statistically significant reduction (6–10 percent) in expected number of reported crimes compared to control areas (Brooks, 2008). In the next chapter, we explore the extent to which BID effects on violence are observable with official crime data that permit us to estimate before-after changes associated with the introduction of BIDs in L.A. neighborhoods over time.

CHAPTER FIVE

Analysis of BID Effects on Reported Violent Crime

As outlined in Chapter One, a number of social-science studies point to the importance of community-level attributes for explaining the neighborhood or area distributions of violence and crime within cities. Few studies, however, point to specific community-level interventions that affect violent-crime rates. A recently published study by Brooks (2008) indicated that the adoption of BIDs in Los Angeles was associated with a greater-than-expected drop in the number of official reported crimes. That study, however, focused on comparing pre-post changes in BIDs during an earlier period and a set of comparison neighborhoods that considered adopting a BID but chose not to. Given that the actual adoption of BIDs requires extensive support from business and property owners (e.g., at least 15 percent of the business owners or 50 percent of the property owners must sign supporting petitions) and a laborious process of legal and legislative oversight, the simple proposed adoption of a BID is not likely to provide a reasonable comparison group (City of Los Angeles Office of the City Clerk, undated). The study by Brooks (2008) also included fixed-effect terms for police RD areas and years to remove between-unit differences in crime rates between BID and non-BID areas to focus on assessing only the BID effect. But it is difficult to reconcile whether establishing a BID is exogenous to other facets of community change that may presage drops in crime and other social problems. In fact, our observations indicate that the priorities and spending of BID areas are correlated with observable indicators of social and physical disorder and the economic conditions in surrounding neighborhoods, suggesting that BID efforts may be endogenous to neighborhood features. In this chapter, we therefore focus on examining whether the community-level intervention of BIDs in Los Angeles had any affect on violence over time in only the areas that experienced receiving a BID. We focus our examination on the areas that eventually adopted BIDs in our research design so that we do not have to make any assumptions about the exogeneity of BID neighborhoods relative to comparison neighborhoods. We examine BID effects by modeling the before-after changes in violent and property crimes for all areas exposed to established BIDs. We use a hierarchical Bayesian model that examines the effects of BIDs on violent- and property-crime incidents reported to the LAPD between 1994 and 2005.

Data

This research focuses on the 12-year period (1994 to 2005) that marked the establishment of BIDs in Los Angeles. The first BIDs in Los Angeles were established in mid-1995 (City of Los Angeles Office of the City Clerk, undated). The data consist of all the geographic areas in Los Angeles that, by 2003, had established a BID. Our outcomes of interest are counts of officially recorded crimes reported to the LAPD. We focus specifically on the total counts of robbery, robbery and homicide, and the UCR Part 1 total set of violent offenses (homicide, rape, robbery, and aggravated assault) because research indicates these measures of crime are less susceptible to underreporting and are more likely to come to the attention of the police and because adolescents and young adults (ages 15–25) are the most likely perpetrators and victims of these crimes of interpersonal violence (Hindelang, Hirschi, and Weis, 1981; Hindelang, 1981; Farrington, 1989; Cook and Laub, 1998).[1] By focusing our analysis primarily on crimes of interpersonal violence, we are offering a closer look at the victimization patterns most likely to be experienced by youth and at theories that argue that these victimization patterns are closely linked to structural theories of neighborhood disadvantage (Sampson, 1987; Sampson, Morenoff, and Gannon-Rowley, 2002). In addition, the efforts that many BIDs expend on creating community change through environmental design modifications and the hiring of private security to maximize social control in public spaces are more likely to be detected in the aspects of predatory violence (like robbery) that are most likely to occur in public settings and have been linked to community conditions and opportunity structures outlined in situational crime-prevention studies (Sampson and Lauritsen, 1994). We also examine the total sum of the yearly counts of all UCR property-crime offenses (burglary, larceny theft, motor-vehicle theft) and the total index of all reported Part 1 crime offenses (murder, rape, robbery, aggravated assault, burglary, larceny theft, motor-vehicle theft).

The yearly counts of crime categories were aggregated by the LAPD's crime-analysis staff to the RD level and graciously provided to RAND. The RD reflects the lowest level of reliable geographic aggregation possible for Los Angeles in the 1990s. RDs are geographic units that reflect police administrative boundaries and are typically smaller than a census tract (one to three RDs per tract). During the 12-year period, there was a general drop in violent crimes and total index offenses in Los Angeles. For example, our analysis of LAPD data indicates that, between 1994 and 2005, the average yearly count of reported violent offenses dropped by 58 percent, whereas the average yearly count of total index offenses dropped by 48 percent. We explore how much of a difference the establishment of a BID contributes to a greater-than-expected decline in violent crime.

Descriptive Trends

Table 5.1 presents a summary of the average number of reported robberies, total violent crimes, and total index crimes for RDs exposed to BIDs compared to the rest of the Los Angeles (non-BD RDs) for years 1994 to 2005.[2]

The simple linear trend of these data indicates that BID areas experienced greater, on average, yearly reductions in the number of robbery, violent, and total crimes than non-BID areas do. For example, the average yearly reduction in robbery crimes was 1.9 in BID areas, compared to 1.2 in non-BID areas. The log of the average robbery counts indicates a 7-percent reduction in robbery in BID areas, compared to a 5.7-percent reduction in non-BID areas. A

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1 Our analysis of the distribution of victims of reported violence and property offenses in Los Angeles leads to a similar conclusion. For example, in the reporting year 2000, the average age of reported victims of violent crime was 31 with a modal age of 21, compared to an average age of 38 and a modal age of 30 for victims of property offenses.

2 We do not discuss the yearly trends in homicide because the counts are low. The average number of homicides per year in an RD is less than 1, and the median (50th percentile) is 0.

Table 5.1
Average Crime, by Year, in BID and Non-BID Reporting Districts

	Non-BID RDs (*n* = 893) (Mean [M])			BID RDs (*n* = 179)		
Year	Robbery	Violent	Total	Robbery	Violent	Total
1994	25.88 (17)	64.27 (42)	246.03 (206)	41.6 (35)	86.53 (66)	347.03 (297)
1995	24.01 (16)	60.89 (41)	231.88 (196)	41.56 (35)	89.75 (74)	343.22 (298)
1996	21.06 (13)	54.70 (35)	206.75 (172)	34.3 (29)	77.35 (61)	290.23 (258)
1997	16.85 (11)	49.14 (33)	179.88 (149)	29.37 (24)	70.52 (57)	253.08 (230)
1998	13.06 (8)	42.99 (28)	160.99 (129)	22.34 (17)	59.77 (51)	225.09 (198)
1999	11.82 (7)	40.58 (26)	142.32 (113)	19.98 (16)	56.46 (46)	211.36 (185)
2000	12.90 (8)	43.63 (26)	152.38 (121)	21.66 (18)	60.26 (51)	226.90 (203)
2001	15.43 (10)	49.38 (31)	173.40 (144)	26.20 (21)	68.74 (55)	257.83 (237)
2002	14.05 (8)	44.56 (26)	161.74 (134)	24.83 (20)	62.94 (54)	234.25 (210)
2003	13.60 (8)	42.24 (26)	157.25 (133)	23.92 (19)	60.21 (51)	226.99 (210)
2004	11.81 (7)	36.65 (22)	144.44 (119)	19.43 (15)	49.12 (44)	201.74 (185)
2005	11.49 (7)	26.49 (15)	126.04 (105)	18.06 (14)	37.91 (34)	173.39 (161)
Average	16.00 (9)	46.29 (28)	173.59 (141)	26.94 (10)	64.96 (52)	249.26 (217)
Linear	–1.2	–2.5	–8.4	–1.9	–3.6	–12.8

NOTE: Each cell contains the average and (median) values for the number of crime incidents. M = median 50th percentile. Linear = yearly linear trend.

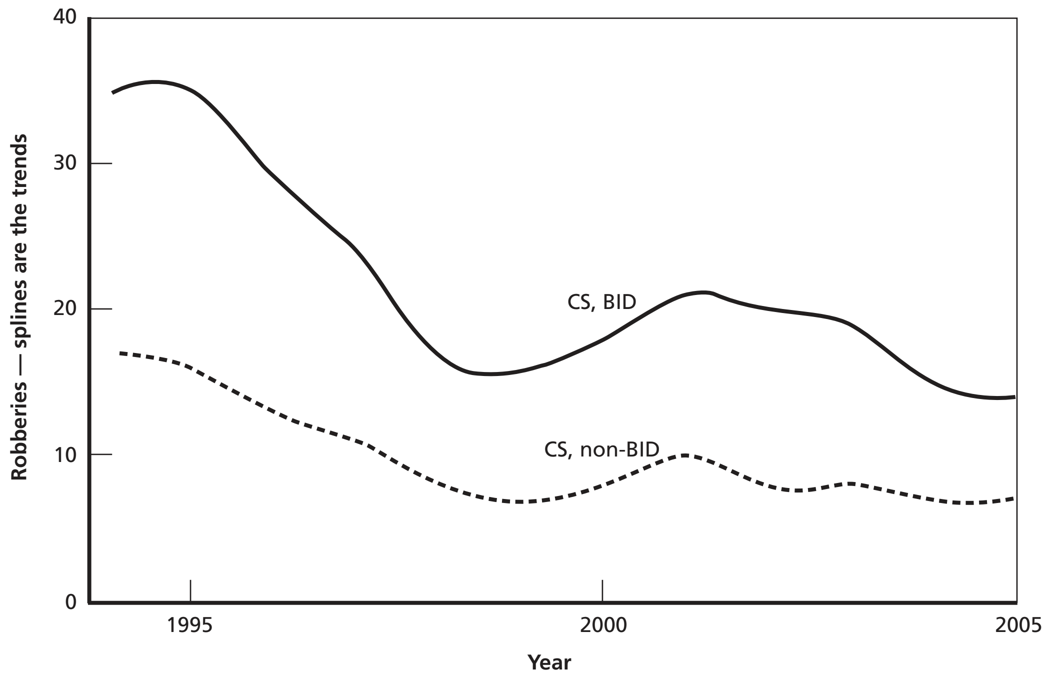
visual depiction of the trends for robbery crimes is noted in Figure 5.1 in terms of cubic spline smoothers.

The percentage reduction for violent and total crime outcomes was not substantively different between non-BID and BID areas, suggesting that the overall trend of yearly declining violent and total crime was occurring in all parts of Los Angeles.

Table 5.2 presents a summary of the average yearly counts in robbery, overall violent crimes, and total index offenses for neighborhood census tracts exposed to BIDs (n = 147) with those of the comparison-neighborhood census tracts (n = 85) used in the household surveys. Because census tracts are larger geographic units than RDs, the overall counts are higher than reported in Table 5.1, but the general trend of crime reduction in BID neighborhoods is greater than that in comparison neighborhoods between years 1994 and 2005. The log of the average yearly robbery counts indicates a 7-percent reduction in BID areas, compared to 5.2 percent in non-BID comparison areas. The percentage reduction in average yearly counts also was greater in BID areas than in matched non-BID areas for violent (5.9 percent versus 4.3 percent) and total crimes (4.7 percent versus 2.6 percent).

The process of adopting a BID signals a level of commitment from business merchants and landowners to promoting economic development and community change. BID activities include attempts to improve the management of public spaces through hiring private security officers and efforts to improve the appearance of the physical environment through spending on beautification and advocating for improved city services. Therefore, it is likely that the

Figure 5.1
Robbery Trends in BID and Non-BID Areas



RAND *TR622-5.1*

Table 5.2
Average Crime, by Year, in BID and Comparison Census-Tract Neighborhoods

	Comparison Tracts (*n* = 85) (Mean [M])			BID Tracts (*n* = 147) (Mean [M])		
Year	Robbery	Violent	Total	Robbery	Violent	Total
1994	27.01 (18)	72.68 (57)	269.99 (234)	51.89 (35)	106.22 (80)	464.75 (336)
1995	25.4 (19)	70.28 (59)	271.13 (242)	50.45 (34)	107.75 (82)	450.46 (325)
1996	23.11 (17)	65.02 (53)	243.4 (209)	42.85 (30)	94.46 (76)	387.79 (279)
1997	18.65 (14)	60.31 (53)	216.72 (201)	36.39 (25)	85.49 (68)	340.63 (235)
1998	14.47 (12)	52.58 (43)	195.51 (180)	27.82 (19)	72.59 (57)	302.45 (206)
1999	14.22 (11)	52.78 (43)	185.13 (152)	25 (18)	68.69 (54)	283.49 (195)
2000	14.84 (11)	55.81 (48)	193.52 (176)	27.07 (20)	74.05 (58)	301.67 (209)
2001	19.07 (16)	62.65 (55)	224.24 (215)	32.03 (22)	82.84 (63)	335.95 (247)
2002	16.93 (14)	57.19 (47)	210.59 (200)	30.48 (20)	76.20 (54)	303.89 (222)
2003	15.92 (12)	51.62 (41)	204.02 (179)	29.48 (19)	73.34 (51)	293.24 (220)
2004	13.59 (11)	45.49 (35)	181.75 (171)	23.96 (15)	60.15 (43)	264.17 (198)
2005	12.95 (10)	32.24 (25)	156.92 (143)	22.52 (14)	46.67 (33)	229.78 (163)
Average	18.01 (13)	56.55 (46)	212.74 (189)	33.33 (22)	79.04 (58)	329.86 (234)

Table 5.2—Continued

	Comparison Tracts (*n* = 85) (Mean [M])			BID Tracts (*n* = 147) (Mean [M])		
Year	**Robbery**	**Violent**	**Total**	**Robbery**	**Violent**	**Total**
Linear	–1.07	–2.6	–7.9	–2.3	–4.3	–17.4

NOTE: M = median 50th percentile. Linear = yearly linear trend.

adoption of a BID is, by itself, a signal that a community is ready for change. The before-after change in the violent-crime patterns for BID areas may, therefore, provide a more sensible approach to assessing BIDs' relative effect on reducing violent crime than a comparison with non-equivalent areas that do not receive BIDs but in which residents are exposed to similar structural features. In the following analysis, we assume that there is something unique about the areas that eventually adopt BIDs and use their year of onset to reflect the exposure to the BID intervention and examine the before-after changes in crime outcomes.

Method

Between 1996 and 2003, there were a total of 30 fully operational BIDs in Los Angeles. We aggregated the individual crime data for each RD to its corresponding BID area. This means that the unit of analysis is any of the 30 areas that eventually adopted a BID. Table 5.3 reports the number of BID areas that became fully operational at any given year. We consider a BID

Table 5.3
BIDs by Year of Observation in Los Angeles

Year	No. of BIDs Started	BID Area
1994	—	
1995	—	
1996	2	Wilshire Center, Fashion District
1997	2	Hollywood Entertainment, San Pedro
1998	6	Los Feliz Village, Larchmont Village, Downtown Center, Figueroa Corridor, Century Corridor, Greater Lincoln Heights
1999	11	Granada Hills, Canoga Park, Van Nuys Blvd. Auto Row, Tarzana, Studio City, Hollywood Media, Westwood Village, Historic Core (Downtown), Toy District, Downtown Industrial, Jefferson Park
2000	2	Chatsworth, Sherman Oaks
2001	4	Encino, L.A. Chinatown, Wilmington, Lincoln Heights Industrial
2002	2	Northridge, Highland Park
2003	1	Reseda
2004	0	—
2005	0	—

SOURCE: Office of the City Clerk.

fully operational if its implementation occurred for the entire calendar year. For instance, the Hollywood Entertainment BID that started in mid-1996 was considered fully operational in 1997. From Table 5.3, we can see that, for all the areas that eventually adopted a BID, there are at least two years' worth of data during which no BID (before) was operational and, similarly, at least two years of data during which all the BIDs were fully operational (after). The proposed model makes use of this kind of data structure to estimate the average BID effect on the crime rate by using information for the 30 areas before any BID was implemented. The following section provides technical details of the model. The subsequent section on results provides a reader-friendly interpretation of the results from the model examining before-after effects of BIDs on violence and other crime outcomes.

To assess the effect of adopting a BID on violent crimes and other crime outcomes, we used a Bayesian hierarchical model that allows us to assess the before-after effects of BID adoption in areas that were exposed to these 30 BIDs. In effect, we estimate the BID effect in each area and the overall (average) BID effect across all areas.

We model the number of reported crimes (y_{it}) for each area (i) that eventually adopted a BID, where $i = 1, \ldots, 30$, at time (t), where $t = 1, \ldots 12$; since we have counts of reported crimes over 12 years ranging from 1994 to 2005, with a Poisson distribution:

$$y_{it} \sim Poisson\left(\lambda_{it}\right). \tag{5.1}$$

The crime rate λ_{it} for area i at time t is modeled in the following way:

$$\log\left(\lambda_{it}\right) = \log\left(K_i\right) \times bid_{it} + \alpha_i + \sum_{k=1}^{3} \beta_k NS_k\left(t\right) + \varepsilon_{it}, \tag{5.2}$$

or equivalently by multiplying both sides of the equation by the exponential

$$\lambda_{it} = K_i^{bid_{it}} \times \alpha_i \times \prod_{k=1}^{3} \beta_k NS_k\left(t\right) \times \varepsilon_{it}. \tag{5.3}$$

In what follows, we describe in detail all the variables and parameters that are used in the model for the crime rate λ_{it}.

The term

$$\sum_{k=1}^{3} \beta_k NS_k\left(t\right)$$

models the time trend over the 12-year period. $NS_k(t)$ denotes the components of a natural cubic spline with three knots (Hastie, Tibshirani, and Friedman, 2001, Section 5.2.1). This is similar to including t, t^2, and t^3 in the regression model in Equation 5.2, but the natural spline avoids erratic behavior that can occur near the boundaries, near $t = 0$ and $t = 11$. This component of the model includes three parameters, $\beta 1$, $\beta 2$, $\beta 3$, and assumes that this time trend and the values of these three parameters are the same across all of the 30 areas. Since crime rate for the entire L.A. area experienced an overall declining trend during the 12-year study period (a decline that is *most likely* unrelated to the introduction of BIDs—this is also shown in Figure 5.1 for the non-BID areas), it is important to account for the trend in the model. We chose this parameterization for the time trend because it is more flexible than the linear trend and smoother and more parsimonious than using year-fixed effects. If we had we not controlled for the overall yearly declining crime trend, we could overestimate the BID effect, when, in reality, the observed decline in crime in BID areas is just an overall trend due to the systemic changes in crime in the entire city of Los Angeles.

The term α_i is a random effect for area *i*. This term scales the time trend to account for area *i*'s volume of crimes. Also, the inclusion of a random effect term in the model has the effect of imposing correlation among the 12 yearly observations on area *i*. We model the random area effects as $\alpha_i \sim N\left(\mu,\tau^2\right)$.

The variable bid_{it} is an indicator that assumes value 1 for those years *t* in which the BID is fully operational in area *i* and 0 for the years prior to BID implementation.

This study's particular interest is on the effect of BID status on crime rate. For every area *i*, we wish to estimate the crime rate when the BID is operational,

$$\lambda_{it}\left(bid_{it}=1\right),$$

relative to what the crime rate would have been had the BID not gone into effect,

$$\lambda_{it}\left(bid_{it}=0\right).$$

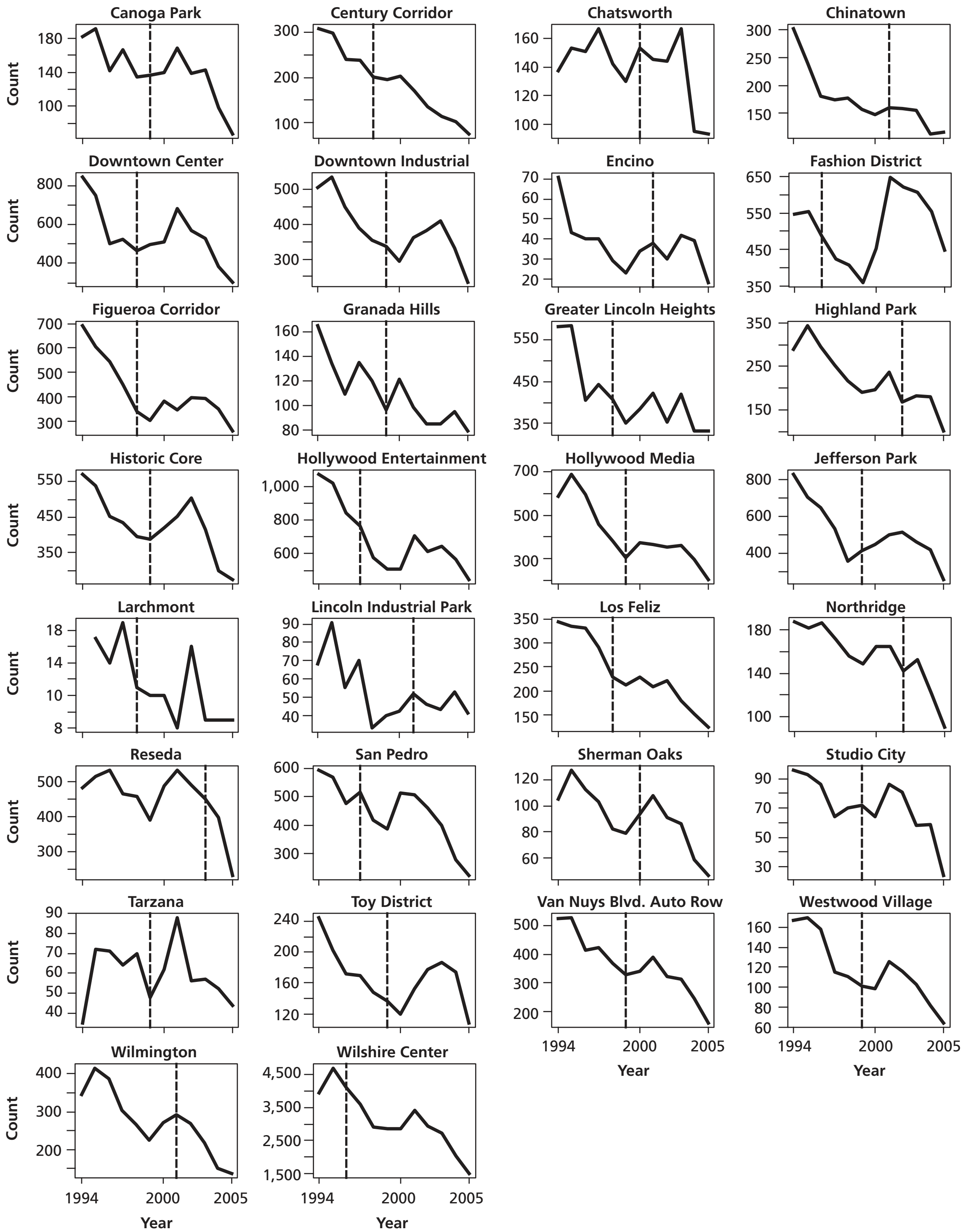
Computing this ratio based on the model in Equation 5.3, we obtain

$$\frac{\lambda_{it}\left(bid_{it}=1\right)}{\lambda_{it}\left(bid_{it}=0\right)}=\frac{K_i\times\alpha_i\times\prod_{k=1}^{3}\beta_k NS_k\left(t\right)\times\varepsilon_{it}}{\alpha_i\times\prod_{k=1}^{3}\beta_k NS_k\left(t\right)\times\varepsilon_{it}}=K_i. \tag{5.4}$$

In short, the model for the crime rate λ_{it} implies a simple counterfactual—that the crime rate in area *i* after the BID becomes fully operational is proportional to what the crime rate would have been in that area had the BID not been implemented. Equation 5.4 demonstrates that the term K_i represents the BID effect on the crime rate for area *i*. If K_i =1, then there is no BID effect (i.e., BID status does not affect the crime rate in area *i*). If, on the other hand, K_i < 1, then the presence of a BID in area *i* is associated with a 1–K_i percent reduction in the crime rate for area *i*. We assume that the BID effects, K_i, share a log-normal distribution, $\log\left(K_i\right)\sim N\left(\mu_K,{\tau_K}^2\right)$. The K_is measure the BID effect within each of the 30 areas, and μ_K represents the average BID effect across the 30 areas.

Finally, ε_{it} is a random error modeled as $N\left(0,\sigma^2\right)$ to allow for overdispersion—that is, variation in the counts y_{it} that is beyond what could be explained by the Poisson model. Note that, since the log-normal distribution and the gamma distribution have very similar shapes, this is highly similar to the often-used negative binomial model for overdispersed count data (Cameron and Trivedi, 1998). We opt for the log-normal parameterization, since model

Figure 5.2
Yearly Violent-Crime Counts in Each BID Area



RAND *TR622-5.2*

specification is simpler for that than for the gamma distribution. We assume that the ε_{it}s are independent, since we have already included a time trend in the model.

We fit the model using a Bayesian approach. This approach requires the specification of prior distributions on the unknown parameters. For these parameters, we adopted flat priors (Gelman et al., 1996), distributions with large variance that represent prior ignorance of the values of the parameters, letting the data have the greatest weight on the final estimates. For the three spline coefficients, we use independent normal priors, $\beta_k \sim N(0,\ 1{,}000)$ for $k = 1,\ 2,\ 3$. The means of the logarithm of the BID effects and of the area random effects also have the same prior, $\mu K \sim N(0,\ 1{,}000)$ and $\mu \sim N(0,\ 1{,}000)$. The variance components $\tau^2, {\tau_K}^2$, and σ^2 all have independent inverse-gamma priors, $\tau^2, {\tau_K}^2,\ \sigma^2 \sim$ inverse gamma (1, 1). The violent-crime trends in the 30 BID areas are displayed in Figure 5.2 to provide the reader with a visual sense of the yearly BID trends and the timing of each of the 30 BID interventions (denoted by a vertical line) that the statistical model is using to estimate the BID effect.

Results

The main goal of the analysis in this chapter is to estimate the effect of adopting a BID on the crime rate within each of the 30 areas, the K_is, and the overall BID effect across all the areas, μ_K. In what follows, we report the posterior means and 95-percent posterior probability intervals for both $1–K_i$ and $1-\mu_K$, which represent the percentage of reduction in the crime rate that can attributed to the adoption of BIDs. We also report an estimate of the probability that the adoption of the BID in area *i* had the effect of reducing crime rate, P (K_i < 1). Similarly, we report $P(\mu_K < 1)$, the probability of an overall BID effect.

Table 5.4 reports the overall BID effect for reported robbery, robbery and homicide, total violence, and total crime (sum of Part 1 offenses). The probability of an overall BID effect is highest for robbery (0.96) and robbery and homicide. For the other three crime outcomes, the effects are in the same direction but are not statistically significant. As we expected, the BID effects are most pronounced for predatory crimes of violence that are most likely to come to the attention of authorities and are putatively more malleable to changes in

Table 5.4
Overall Estimated Reduction in Reported Crime from BIDs (%)

Crime-Report Data	Posterior Mean ([1–μK] × 100)	95% Posterior Probability Interval	Probability of a BID Effect (P[μK < 1])
Robbery	12	(–2, 24)	0.96
Robbery + homicide	12	(–2, 24)	0.96
Violent crime	8	(–5, 21)	0.91
Property crime	6	(–5, 17)	0.85
Total crime	6	(–6, 17)	0.86

environmental features of the neighborhood affected by BID adoption than they are for property crimes (Sampson, Morenoff, and Gannon-Rowley, 2002).[3]

Given that the overall BID effect was strongest for robbery, we report more-detailed information for this outcome. Table 5.5 reports the BID area–specific effects for official reports of robbery. The results for estimates of area-specific BID effects for the other crime outcomes are presented in the appendix.

Table 5.5 confirms the result for robbery, since, for 14 of the 30 areas, the probability of a BID effect is 0.90 or higher; for another two areas, such probability is more than 0.80, which still provides evidence for the presence of a BID effect in the expected direction. Overall, it seems safe to conclude that the BIDs in the L.A. area had a significant effect in reducing the incidence of reported robberies. However, the size of such an effect is quite variable across the 30 areas and appears to indicate a greater-than-expected difference in reducing the rate of robberies in BIDs located in areas that have undergone significant patterns of community change. For example, individual BID effects were apparent in Jefferson Park and Figueroa Corridor, which are situated close to the University of Southern California, in areas of notable economic development and gentrification. Hollywood Media and Larchmont also exhibited effects on the rate of robberies and are situated in neighborhoods undergoing CED and gentrification. BID effects are not dominated by only those that invest heavily in crime-prevention efforts, although Century Corridor, Figueroa Corridor, and Hollywood Media did experience significant reductions in robbery, and all invest heavily in crime prevention. The implications of this finding will be discussed in more detail in Chapter Six.

Model Limitations and Discussion

The proposed model provides an estimate of the overall crime rate in every area i at time t. It does not model the individual or per capita crime rate. Therefore, the adopted model implicitly assumes that the population at risk does not change over time. It is, however, possible that the establishment of a BID could change the population at risk for crimes in a number of ways. If, for instance, the increase in the population at risk for crimes (e.g., number of shoppers, visitors, residents) is faster than the decline of the individual crime rate associated with the adoption of the BID, the estimates obtained from the adopted model would have us conclude that the adoption of the BID did not have an effect in reducing crime, since the overall population at risk (denominator) actually went up. Unfortunately, it is very hard to get a good estimate of the population at risk for areas like those that eventually adopted a BID. Assuming that the population at risk coincides with the population that resides in an area would be incorrect. It is almost certain that areas that have successfully implemented a BID are attracting a larger number of visitors to that area than the residential population.

Because of the difficulties in establishing a reliable population at risk for crime in any given area in Los Angeles, we decided to use only the data on areas that eventually have adopted a BID to assess BID effects on crime incidence. Assuming that these areas have unique features in terms of the businesses that operate and the communities that encourage or permit

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[3] Because homicides are such rare events, we do not present separate point estimates from these models in the text. In fact, the estimates from the model for homicide varies widely, and the probability of detecting a BID effect is low $\left(P\left(\mu_K < 1 = 0.43\right)\right)$, suggesting that BIDs have no effect. Specifically, the homicide model indicates a 5-percent increase with a 95-percent CI that ranges from a 50-percent reduction to a 29-percent increase associated with BID adoption (see the appendix).

Table 5.5
Area-Specific BID Effects on Robbery

BID Name	Area ID	Posterior Mean ($[1–K_i]$)	Probability of a BID Effect ($P[K_i < 1]$)	95% Posterior CI
Granada Hills	1	18	0.93	–6, 37
Chatsworth	2	5	0.65	–20, 25
Northridge	3	18	0.94	–5, 36
Reseda	4	15	0.90	–9, 33
Canoga Park	5	3	0.60	–24, 25
Van Nuys Blvd. Auto Row	6	26	0.99	7, 41
Tarzana	7	–10	0.25	–44, 16
Encino	8	11	0.76	–22, 35
Sherman Oaks	9	10	0.76	–18, 31
Studio City	10	9	0.76	–20, 31
Los Feliz Village	11	21	0.98	1, 39
Highland Park	12	11	0.83	–14, 30
Hollywood Entertainment	13	9	0.80	–16, 28
Hollywood Media	14	15	0.95	–5, 32
Larchmont Village	15	34	0.99	5, 53
Wilshire Center	16	4	0.63	–25, 26
L.A. Chinatown	17	21	0.98	0, 38
Westwood Village	18	21	0.97	–1, 39
Downtown Center	19	7	0.74	–17, 25
Historic Core	20	1	0.55	–21, 21
Toy District	21	8	0.77	–16, 27
Fashion District	22	–24	0.05	–63, 5
Downtown Industrial	23	14	0.90	–8, 31
Figueroa Corridor	24	20	0.96	–2, 36
Jefferson Park	25	17	0.95	–4, 33
Century Corridor	26	27	1.00	8, 43
Wilmington	27	–7	0.28	–34, 14
San Pedro	28	8	0.75	–18, 29
Lincoln Heights	29	11	0.77	–20, 34
Greater Lincoln Heights	30	25	1.00	6, 41

NOTE: Bold indicates a BID with a probability of a BID effect of ≥0.90.

their existence, constructing a group of comparison areas that are matched to the BID areas with respect to certain demographic features of area residents would represent a less conservative test of the effects of BIDs, since there are clearly features of BID areas that are unique in their ability to get a majority of landowners or merchants interested in their adoption. In other words, we think that the areas that will eventually adopt a BID are the best control group for those areas that have already adopted a BID. Even though the areas that eventually become BIDs might be quite different, they all share the uniqueness and drive that made them eventually adopt a BID. The model we used essentially estimates the BID effects due to the fact that the 30 areas that have eventually adopted a BID have done so at different points in time (see Table 5.1 and Figure 5.2).

Finally, the model implicitly assumes that the level and intensity at which crime is reported do not change over time. If, however, the adoption of a BID implies an increase in local merchants' and residents' willingness to report crimes and an increased response from the police to combat crime, then the crime reports may actually increase as a function of a BID's implementation. If this were the case, the adopted model would suggest that adopting a BID has the effect of increasing crime rates. Given that the findings suggest an overall effect of BIDs on robbery and null effects for other crimes, we have some confidence in these results.

Summary

The results from the model suggest marginal effects of BIDs on the rate of violence overall but a significant effect of the introduction of BIDs on reducing the rate of robberies in their areas. The overall effect of BIDs on robbery, as well as robberies and homicides aggregated together, is consistent with the efforts that many of these BIDs expend on improving the physical appearance of their areas to make them more attractive to commercial business and less attractive to potential offenders (e.g., painting over graffiti, increased street lighting, closed-circuit television, or CCTV, cameras). In addition, many of these BIDs spend a considerable share of their resources on the hiring of private security or public ambassadors who focus on keeping streetscapes clean and safe, thereby increasing the level of social control in public spaces. These strategies are closely linked to research and theory on crime prevention through environmental design (CPTED) and the effects of opportunity structures and community conditions on violence and, in particular, robbery (J. Wilson and Kelling, 1982; Sampson and Lauritsen, 1994; Felson, 1995; Felson and Clarke, 1997). In addition, BIDs that have experienced changing residential compositions and, most likely, gentrification also appear to be associated with greater-than-expected reductions in robberies.

CHAPTER SIX

Summary and Conclusions

The purpose of this study was to assess the effects of BIDs in Los Angeles on youth violence and neighborhood environments. Because this study relies on observational data, we are limited in the extent to which we can draw any causal inference about the effects of BIDs on neighborhood-level social and physical environments or youth-violence outcomes. We were able to observe and document BID activities, witness BID directors interacting with city officials, and assess the functions of BIDs across a variety of domains, including their budget spending, their perceived integration with city service agencies, and the extent to which they regularly communicate with residents and city officials about community concerns. It is clear from our analysis that the environmental settings of BIDs vary greatly in Los Angeles, as does their scale of community involvement and level of priorities. Some BIDs spend as much as half their annual budgets on crime-prevention and beautification efforts that are clearly linked to community-level theories of youth violence and neighborhood change. Some BID directors actively work with the LAPD on crime-prevention planning through active coordination between their private security officers and the police. Other BIDs focus their resources on keeping streetscapes clean and beautification efforts, like planting trees and improving building facades, so that the commercial establishments in their affected areas are more attractive to commercial shoppers. Some established BIDs have relatively small budgets and focus their efforts primarily on place promotion in an effort to foster improved commercial activity for their constituent businesses. While the combined efforts of all BIDs may produce longer-term improvements in their local CEDs, the majority of BIDs do not have the financial resources, on their own, to produce measurable effects on neighborhood environments or youth violence. That said, it is clear from interviews with BID officials, observations of BID areas, and an analysis of their budget data and spending priorities that the majority of BIDs are engaged in a grassroots effort to advocate for improved city services, including police, sanitation, and public works, to improve the overall appeal of their communities. Efforts such as these in the long term can serve the overall public good of improving the responsiveness of city agencies to area demands—key ingredients in the eventual ability of a distressed neighborhood's ability to turn around for the better or be revitalized (Taub, Taylor, and Dunham, 1984).

Given the limited budgets and staff of many BIDs, we are not surprised to see that the mere presence of a BID is not systematically associated with reduced incidence of youth violence in neighborhoods at baseline. BID neighborhoods, compared to our matched control neighborhoods, are also not systematically correlated with differences in perceived neighborhood environments, such as collective efficacy or disorder. Because we designed the non–BID exposed neighborhoods to be similarly situated to BID-exposed neighborhoods in their population dynamics, our methodology provides a very conservative test of perceived between-group differences in neighborhood environments.

The results from this study do, however, confirm other seminal work (see Skogan, 1990; Sampson, Morenoff, and Raudenbush, 2005) in noting that the perceptions of neighborhood environments, as measured by disorder and collective efficacy, are associated with crime-related outcomes. In both BID and non-BID comparison neighborhoods, a great perception of trust and shared responsibilities for civic life between neighbors was significantly associated with a reduced likelihood that youth experienced serious forms of violence. These findings are important because they suggest that increasing positive interactions among neighbors in BID and non-BID areas can serve as a protective factor from youth violence.

Additionally, our analysis indicated that youth living in immigrant households, compared to similarly situated youth from nonimmigrant households, are at significantly reduced odds of experiencing youth violence. These results are compelling because they suggest that immigrant households provide greater protection for their youth from experiencing these negative life outcomes than that received by youth in nonimmigrant households living in similar social and economic circumstances. Given that Los Angeles is a gateway city for immigrants, these findings have both theoretical and policy importance—for they suggest that immigrant households have fewer-than-expected experiences with youth violence.

Our study also found that there is substantial variation in the observed environments of the L.A. BIDs. The prevalence of visual signs of blight and disorder varied systematically between BIDs located in areas of poverty and Skid Row and other BID locations. This observed pattern is also consistent with the results from the household survey that indicated that youth living in some BID areas are significantly more likely to experience youth-violence outcomes.

The analysis of official crime data, however, documents that, in the long term, the effects of BIDs may produce changes toward reducing the incidence of interpersonal violence. Relying on a conservative estimate that compared the pre-post BIDs trends in reported crimes for only those areas that eventually adopt a BID, we found that the presence of a BID was associated with significantly reduced rates of robberies and marginally significant reductions in the rates of general violence. The BID effect on robbery rate also varies by location; some BID locations have greater effects than others. The pattern of reduced robberies was affected the most by the adoption of BIDs in areas that have undergone significant economic development or gentrification or invested heavily in crime prevention. We cannot, however, say whether spending or economic-development efforts and gentrification caused these reductions or are merely correlated with them. It is not possible to construct a reasonable model of such a dynamic system of neighborhood change with the available data used in this study. Findings from this study are important because they do suggest that the efforts expended by BIDs on CED activities and social-control efforts, through spending on crime prevention and political economy of advocating for services and attention to many traditionally neglected sections of Los Angeles, are associated with a reduced neighborhood-level incidence of interpersonal violence that is most likely experienced by youth and young adults.

This study has a number of limitations that are worth addressing. Because this study relied primarily on cross-sectional data, we cannot know the extent to which the correlations observed are causally related. We attempted to remove the potential selection effects of the adoption of BIDs to neighborhood areas by creating a matched comparison sample of residents living in non-BID areas but equally exposed to aggregate patterns of poverty, income, and ethnicity. In addition, we attempted to remove the potential selection effects of establishing a

BID by estimating pre-post BID effects on official crimes for only those areas that eventually adopted a BID. In the absence of an experimental design, in which we could randomly assign neighborhoods to BIDs, we cannot know whether BIDs truly cause neighborhood change or are associated with it through a process of self-selection. In addition, the associations between perceived neighborhood environments (e.g., collective efficacy and disorder) and youth violence are not necessarily causal mechanisms. It is likely that effects of perceived levels of neighborhood disorder and collective efficacy do not cause exposure to youth violence but may reflect an association that occurs through individuals selecting into specific neighborhoods with better or worse social and physical environments, which, in turn, are associated with violence outcomes. However, it is worth noting that the effects of collective efficacy remain even when we statistically control for neighborhood mechanisms related to poverty, population density, prior years of violent crime, and other covariates classically associated with youth-violence outcomes at the neighborhood level. The implications of this research are, therefore, important because they confirm prior work in Chicago and other cities in noting that perceived neighborhood environments matter and that the likelihood of exposure to violence in neighborhoods involves more than just differences in levels of social class and other household factors.

For policymakers contemplating a citywide effort to encourage the establishment of BIDs as catalysts of CED, our research suggests that understanding the dynamics of the areas in which BIDs operate is more important for their role in creating change than the simple adoption of BIDs. Merely adopting a BID does not guarantee positive impact. One of the main strengths of the BID model is its localized governance capability, in which local actors, knowledgeable about local problems, can tailor a strategic response to the problems of economic development and crime. We think that this analysis echoes a previous examination of BIDs in New York City by Gross (2005), who suggested that understanding the "internal and external contextual factors" is important for more adequately targeting the role of a BID toward the development needs of a community. Our analysis suggests that BID organizations, though acting as advocates for more responsive city service provisions in their geographic boundaries, cannot be expected to serve as agents of change for larger systemic social problems related to poverty, unemployment, and youth violence. Rather, BIDs can, in some circumstances, provide better place management of public spaces, such as through employing private security officers, but such efforts are likely to have systemic effects only in BIDs that have the capacity to provide these additional provisions on a large scale or possess the political leverage to facilitate smarter and more focused practices in their districts and can effectively partner with city service agencies. Our findings in Los Angeles indicate that BIDs are not by themselves the solution to community problems—as some advocates have suggested (H. MacDonald, 1996)—nor do they simply represent business interests at the expense of the larger collection of area residents, as some neoliberal critics have noted (Harcourt, 2005). BIDs in Los Angeles are diverse in their foci and priorities. Some BIDs clearly show promise in improving community concerns and issues by providing enhanced services and advocating for a more responsive city government to address issues of crime, infrastructure maintenance, and capital improvements. We think that these are useful observations for keeping a measured policy discussion of the role of BIDs in community revitalization.

Economic-development professionals seeking out the BID model as a driver for large-scale community-revitalization efforts should, therefore, recognize that scale is important and that most BIDs cannot facilitate such changes with their existing resources. Our observations of BID Consortium meetings and interviews with their administrators indicated that regular interaction with city service agencies is a common feature of most BIDs and that the BID constituency receives an important voice among these agencies. Whether such political economy translates into long-term patterns in community revitalization will require years to ascertain.

Creating community change is difficult. At best, this study offers a cross-sectional glimpse of the short-term effects of BIDs. Whether BIDs produce sustainable change to communities requires a longitudinal framework whereby the observational data from BID and non-BID comparison areas can be assessed over a longer period of time. The initial results from this analysis of baseline data suggest that BIDs may be an important catalyst of neighborhood change that is worth further scientific investigation and will be part of our ongoing research effort.

APPENDIX

Results for the K Model with Natural Spline Year Effects

Legend

Row Names or Parameters of Interest

- ***LogK*** is the log of *K*, where *K* is the BID effect. If *K* is smaller than 1, then there is a BID effect. Therefore, if *LogK* is negative (significantly negative), then the BID effect is greater than 0. *LogK* exists for every area that eventually becomes a BID (i.e., 30 areas).
- ***muK*** is the mean of the *LogK*s and therefore represents the overall BID effect across all 30 areas. Again, if it is significantly different from 0 and negative, then we have an overall BID effect.
- ***EmuK*** is *exp (muK)* and puts the overall BID effect in the positive scale. In this case, if *EmuK* is significantly smaller than 1, then we have an overall BID effect.
- ***pK*** is the probability that *LogK* is negative. In general, if this probability is 0.95 or larger, we consider that there is a BID effect in that area. We use both *LogK* and *pK* to get an idea of how a given area is doing.
- ***PmuK*** is the probability that *muK* is less than 0, and, as with *pK*, if it is large, there is an overall BID effect.
- ***SDSigma*** is the standard deviation of the error terms ε_{it}.
- ***SDTau*** is the standard deviation for the random effects α_is, where the α_is are the random effects for every area that eventually became a BID. Usually, the larger *SDTau* is, the more the presence of the random effect is needed.
- ***SDTauK*** is the standard deviation for the *LogK*s.
- ***beta1***, ***beta2***, and ***beta3*** are the three parameters associated with the natural spline used to model the time trend over the 12 years' worth of data.
- ***mu*** is the mean of the α_is.
- ***sigma***, ***tau***, and ***tauK*** are the precisions for the ε_{it}s, α_is, and *LogK*s, respectively. By definition, the precision is the inverse of the variance.

Column Names

- **mean** is the posterior mean for the parameter of interest.
- **sd** is the posterior standard deviation of the parameter of interest.
- **MC_error** is the Monte Carlo error in estimating the posterior distribution.
- **val2.5pc** is the posterior 2.5 percentile. We use this to build the 95-percent posterior probability interval for the parameter of interest, which we use to decide whether a parameter is significantly different from 0. It is the lower or left limit for the interval.

- **median** is the posterior median.
- **val97.5pc** is the 97.5-percent posterior percentile. We use this as the upper or right limit for the interval.

In this appendix, we present the results of our analyses of data for the crimes used in the analyses.

Officially Reported Crimes

Note that the first year of data for BID 15 are imputed.

Table A.1
Homicide

Parameter	mean	sd	MC_error	val2.5pc	median	val97.5pc
EmuK	1.051	0.201	0.005	0.711	1.035	1.496
LogK[1]	–0.227	0.475	0.009	–1.195	–0.217	0.685
LogK[2]	–0.030	0.449	0.009	–0.951	–0.018	0.826
LogK[3]	0.035	0.462	0.009	–0.884	0.034	0.926
LogK[4]	0.164	0.382	0.007	–0.643	0.170	0.889
LogK[5]	–0.023	0.418	0.010	–0.842	–0.026	0.786
LogK[6]	0.425	0.376	0.008	–0.295	0.419	1.190
LogK[7]	0.021	0.505	0.010	–0.975	0.027	0.992
LogK[8]	0.088	0.513	0.012	–0.968	0.105	1.073
LogK[9]	–0.086	0.483	0.012	–1.098	–0.081	0.826
LogK[10]	–0.115	0.508	0.013	–1.100	–0.121	0.870
LogK[11]	–0.165	0.344	0.007	–0.820	–0.169	0.499
LogK[12]	–0.268	0.357	0.009	–0.961	–0.278	0.417
LogK[13]	0.139	0.323	0.007	–0.471	0.134	0.796
LogK[14]	0.324	0.348	0.009	–0.321	0.322	1.050
LogK[15]	–0.331	0.523	0.010	–1.419	–0.319	0.651
LogK[16]	–0.058	0.277	0.007	–0.609	–0.060	0.499
LogK[17]	–0.353	0.413	0.008	–1.196	–0.349	0.442
LogK[18]	–0.021	0.486	0.011	–1.033	–0.011	0.937
LogK[19]	–0.026	0.292	0.007	–0.595	–0.026	0.552
LogK[20]	0.389	0.336	0.008	–0.263	0.389	1.070
LogK[21]	–0.456	0.428	0.010	–1.326	–0.447	0.373
LogK[22]	0.316	0.358	0.008	–0.367	0.313	1.015

Table A.1—Continued

Parameter	mean	sd	MC_error	val2.5pc	median	val97.5pc
LogK[23]	–0.052	0.322	0.009	–0.708	–0.053	0.571
LogK[24]	–0.013	0.315	0.007	–0.650	–0.011	0.574
LogK[25]	0.523	0.290	0.007	–0.040	0.521	1.101
LogK[26]	0.321	0.348	0.008	–0.336	0.310	1.033
LogK[27]	–0.187	0.319	0.006	–0.809	–0.178	0.423
LogK[28]	0.213	0.323	0.008	–0.423	0.213	0.847
LogK[29]	0.283	0.404	0.009	–0.478	0.281	1.110
LogK[30]	0.125	0.294	0.006	–0.452	0.126	0.712
PmuK	0.431	0.495	0.011	0.000	0.000	1.000
SDSigma	0.345	0.037	0.001	0.275	0.344	0.422
SDTau	1.449	0.229	0.005	1.076	1.425	1.985
SDTauK	0.506	0.095	0.002	0.347	0.493	0.714
beta1	–0.562	0.222	0.005	–1.005	–0.561	–0.130
beta2	–1.726	0.331	0.009	–2.375	–1.732	–1.052
beta3	–0.494	0.164	0.004	–0.818	–0.492	–0.182
deviance	1,104.000	17.750	0.467	1,070.000	1,103.000	1,140.000
mu	1.042	0.290	0.006	0.477	1.039	1.638
muK	0.032	0.190	0.005	–0.341	0.034	0.403
pK[1]	0.691	0.462	0.009	0.000	1.000	1.000
pK[2]	0.517	0.500	0.011	0.000	1.000	1.000
pK[3]	0.468	0.499	0.011	0.000	0.000	1.000
pK[4]	0.336	0.472	0.009	0.000	0.000	1.000
pK[5]	0.529	0.499	0.010	0.000	1.000	1.000
pK[6]	0.126	0.331	0.007	0.000	0.000	1.000
pK[7]	0.481	0.500	0.010	0.000	0.000	1.000
pK[8]	0.422	0.494	0.011	0.000	0.000	1.000
pK[9]	0.564	0.496	0.012	0.000	1.000	1.000
pK[10]	0.594	0.491	0.012	0.000	1.000	1.000
pK[11]	0.701	0.458	0.010	0.000	1.000	1.000
pK[12]	0.762	0.426	0.010	0.000	1.000	1.000
pK[13]	0.341	0.474	0.010	0.000	0.000	1.000
pK[14]	0.168	0.374	0.008	0.000	0.000	1.000
pK[15]	0.734	0.442	0.011	0.000	1.000	1.000

Table A.1—Continued

Parameter	mean	sd	MC_error	val2.5pc	median	val97.5pc
pK[16]	0.583	0.493	0.012	0.000	1.000	1.000
pK[17]	0.796	0.403	0.009	0.000	1.000	1.000
pK[18]	0.513	0.500	0.012	0.000	1.000	1.000
pK[19]	0.531	0.499	0.012	0.000	1.000	1.000
pK[20]	0.118	0.323	0.006	0.000	0.000	1.000
pK[21]	0.856	0.351	0.009	0.000	1.000	1.000
pK[22]	0.185	0.389	0.008	0.000	0.000	1.000
pK[23]	0.578	0.494	0.012	0.000	1.000	1.000
pK[24]	0.513	0.500	0.011	0.000	1.000	1.000
pK[25]	0.033	0.177	0.004	0.000	0.000	1.000
pK[26]	0.186	0.389	0.009	0.000	0.000	1.000
pK[27]	0.714	0.452	0.009	0.000	1.000	1.000
pK[28]	0.260	0.439	0.011	0.000	0.000	1.000
pK[29]	0.245	0.430	0.009	0.000	0.000	1.000
pK[30]	0.333	0.471	0.009	0.000	0.000	1.000
sigma	8.678	1.892	0.051	5.609	8.428	13.240
tau	0.511	0.156	0.003	0.254	0.493	0.864
tauK	4.325	1.631	0.033	1.968	4.107	8.332

Table A.2
Robbery

Parameter	mean	sd	MC_error	val2.5pc	median	val97.5pc
EmuK	0.877	0.064	0.002	0.754	0.874	1.004
LogK[1]	–0.197	0.134	0.003	–0.463	–0.195	0.067
LogK[2]	–0.060	0.126	0.003	–0.305	–0.058	0.181
LogK[3]	–0.196	0.134	0.004	–0.455	–0.192	0.069
LogK[4]	–0.169	0.125	0.003	–0.420	–0.168	0.078
LogK[5]	–0.039	0.130	0.004	–0.293	–0.037	0.208
LogK[6]	–0.303	0.119	0.003	–0.544	–0.303	–0.072
LogK[7]	0.085	0.135	0.004	–0.179	0.082	0.354
LogK[8]	–0.123	0.163	0.003	–0.454	–0.119	0.196
LogK[9]	–0.107	0.131	0.004	–0.364	–0.112	0.160
LogK[10]	–0.095	0.134	0.004	–0.355	–0.095	0.162
LogK[11]	–0.246	0.120	0.003	–0.478	–0.246	–0.015

Table A.2—Continued

Parameter	mean	sd	MC_error	val2.5pc	median	val97.5pc
LogK[12]	–0.120	0.128	0.003	–0.371	–0.119	0.141
LogK[13]	–0.102	0.117	0.003	–0.329	–0.103	0.124
LogK[14]	–0.172	0.114	0.003	–0.395	–0.172	0.047
LogK[15]	–0.410	0.179	0.004	–0.754	–0.407	–0.058
LogK[16]	–0.049	0.139	0.006	–0.310	–0.046	0.226
LogK[17]	–0.232	0.118	0.003	–0.466	–0.232	–0.005
LogK[18]	–0.251	0.127	0.003	–0.497	–0.252	0.000
LogK[19]	–0.068	0.114	0.003	–0.286	–0.072	0.159
LogK[20]	–0.015	0.111	0.004	–0.225	–0.017	0.206
LogK[21]	–0.093	0.122	0.003	–0.328	–0.091	0.140
LogK[22]	0.215	0.137	0.004	–0.049	0.214	0.477
LogK[23]	–0.158	0.110	0.003	–0.369	–0.160	0.058
LogK[24]	–0.222	0.113	0.003	–0.444	–0.220	–0.003
LogK[25]	–0.187	0.114	0.003	–0.411	–0.187	0.040
LogK[26]	–0.318	0.126	0.003	–0.556	–0.321	–0.068
LogK[27]	0.063	0.119	0.003	–0.169	0.061	0.299
LogK[28]	–0.090	0.128	0.004	–0.338	–0.089	0.159
LogK[29]	–0.122	0.157	0.004	–0.420	–0.123	0.193
LogK[30]	–0.302	0.117	0.003	–0.523	–0.300	–0.074
PmuK	0.968	0.176	0.005	0.000	1.000	1.000
SDSigma	0.178	0.009	0.000	0.160	0.177	0.196
SDTau	1.029	0.134	0.003	0.808	1.016	1.335
SDTauK	0.312	0.043	0.001	0.241	0.307	0.411
beta1	–0.208	0.068	0.003	–0.340	–0.207	–0.075
beta2	–1.340	0.101	0.005	–1.531	–1.341	–1.138
beta3	–0.395	0.053	0.002	–0.494	–0.396	–0.296
deviance	2,628.000	25.130	0.665	2,579.000	2,628.000	2,678.000
mu	5.100	0.191	0.005	4.718	5.094	5.477
muK	–0.134	0.073	0.003	–0.282	–0.134	0.004
pK[1]	0.930	0.255	0.006	0.000	1.000	1.000
pK[2]	0.675	0.468	0.012	0.000	1.000	1.000
pK[3]	0.930	0.254	0.006	0.000	1.000	1.000
pK[4]	0.912	0.283	0.006	0.000	1.000	1.000

Table A.2—Continued

Parameter	mean	sd	MC_error	val2.5pc	median	val97.5pc
pK[5]	0.603	0.489	0.012	0.000	1.000	1.000
pK[6]	0.997	0.055	0.001	1.000	1.000	1.000
pK[7]	0.259	0.438	0.012	0.000	0.000	1.000
pK[8]	0.772	0.419	0.009	0.000	1.000	1.000
pK[9]	0.794	0.404	0.010	0.000	1.000	1.000
pK[10]	0.757	0.429	0.015	0.000	1.000	1.000
pK[11]	0.981	0.137	0.004	1.000	1.000	1.000
pK[12]	0.836	0.370	0.009	0.000	1.000	1.000
pK[13]	0.814	0.390	0.009	0.000	1.000	1.000
pK[14]	0.943	0.233	0.005	0.000	1.000	1.000
pK[15]	0.987	0.115	0.003	1.000	1.000	1.000
pK[16]	0.628	0.483	0.016	0.000	1.000	1.000
pK[17]	0.979	0.145	0.003	1.000	1.000	1.000
pK[18]	0.976	0.155	0.003	1.000	1.000	1.000
pK[19]	0.727	0.446	0.010	0.000	1.000	1.000
pK[20]	0.559	0.496	0.015	0.000	1.000	1.000
pK[21]	0.770	0.420	0.010	0.000	1.000	1.000
pK[22]	0.057	0.232	0.006	0.000	0.000	1.000
pK[23]	0.922	0.268	0.006	0.000	1.000	1.000
pK[24]	0.977	0.151	0.003	1.000	1.000	1.000
pK[25]	0.950	0.218	0.005	0.000	1.000	1.000
pK[26]	0.996	0.063	0.001	1.000	1.000	1.000
pK[27]	0.300	0.458	0.011	0.000	0.000	1.000
pK[28]	0.760	0.427	0.012	0.000	1.000	1.000
pK[29]	0.780	0.414	0.010	0.000	1.000	1.000
pK[30]	0.999	0.032	0.001	1.000	1.000	1.000
sigma	31.970	3.346	0.067	26.000	31.800	39.050
tau	0.992	0.250	0.006	0.564	0.970	1.534
tauK	10.840	2.916	0.065	5.944	10.600	17.330

Table A.3
Robbery + Homicide

Parameter	mean	sd	MC_error	val2.5pc	median	val97.5pc
EmuK	0.881	0.064	0.002	0.763	0.881	1.015
LogK[1]	–0.196	0.132	0.003	–0.449	–0.195	0.070
LogK[2]	–0.060	0.131	0.003	–0.311	–0.058	0.211
LogK[3]	–0.195	0.133	0.003	–0.457	–0.196	0.068
LogK[4]	–0.149	0.128	0.002	–0.393	–0.153	0.095
LogK[5]	–0.043	0.128	0.004	–0.289	–0.042	0.202
LogK[6]	–0.277	0.119	0.003	–0.512	–0.274	–0.035
LogK[7]	0.102	0.142	0.004	–0.170	0.104	0.394
LogK[8]	–0.102	0.162	0.004	–0.421	–0.103	0.214
LogK[9]	–0.104	0.133	0.003	–0.375	–0.102	0.155
LogK[10]	–0.087	0.139	0.004	–0.359	–0.086	0.184
LogK[11]	–0.247	0.121	0.004	–0.476	–0.246	–0.007
LogK[12]	–0.120	0.121	0.003	–0.365	–0.118	0.112
LogK[13]	–0.094	0.118	0.004	–0.324	–0.093	0.131
LogK[14]	–0.160	0.113	0.003	–0.376	–0.163	0.070
LogK[15]	–0.426	0.179	0.004	–0.771	–0.427	–0.075
LogK[16]	–0.056	0.131	0.005	–0.308	–0.056	0.215
LogK[17]	–0.240	0.118	0.003	–0.474	–0.239	–0.015
LogK[18]	–0.239	0.125	0.003	–0.487	–0.235	0.001
LogK[19]	–0.062	0.113	0.003	–0.277	–0.064	0.164
LogK[20]	–0.007	0.107	0.003	–0.215	–0.008	0.205
LogK[21]	–0.096	0.123	0.003	–0.331	–0.094	0.140
LogK[22]	0.224	0.140	0.004	–0.062	0.223	0.498
LogK[23]	–0.147	0.116	0.003	–0.367	–0.146	0.084
LogK[24]	–0.217	0.116	0.003	–0.441	–0.217	0.008
LogK[25]	–0.156	0.113	0.003	–0.379	–0.154	0.065
LogK[26]	–0.300	0.124	0.003	–0.539	–0.301	–0.041
LogK[27]	0.049	0.116	0.004	–0.182	0.051	0.281
LogK[28]	–0.079	0.132	0.004	–0.329	–0.080	0.181
LogK[29]	–0.087	0.150	0.004	–0.391	–0.087	0.199
LogK[30]	–0.284	0.117	0.003	–0.506	–0.282	–0.061
PmuK	0.962	0.192	0.005	0.000	1.000	1.000
SDSigma	0.177	0.009	0.000	0.159	0.176	0.197

Table A.3—Continued

Parameter	mean	sd	MC_error	val2.5pc	median	val97.5pc
SDTau	1.037	0.140	0.003	0.806	1.024	1.352
SDTauK	0.313	0.043	0.001	0.243	0.309	0.412
beta1	–0.220	0.069	0.003	–0.353	–0.220	–0.082
beta2	–1.361	0.100	0.005	–1.552	–1.360	–1.158
beta3	–0.402	0.053	0.002	–0.506	–0.402	–0.298
deviance	2,636.000	24.580	0.666	2,588.000	2,636.000	2,685.000
mu	5.118	0.193	0.005	4.748	5.114	5.495
muK	–0.129	0.072	0.002	–0.270	–0.127	0.015
pK[1]	0.931	0.253	0.006	0.000	1.000	1.000
pK[2]	0.686	0.464	0.011	0.000	1.000	1.000
pK[3]	0.930	0.255	0.006	0.000	1.000	1.000
pK[4]	0.873	0.333	0.007	0.000	1.000	1.000
pK[5]	0.636	0.481	0.014	0.000	1.000	1.000
pK[6]	0.991	0.097	0.002	1.000	1.000	1.000
pK[7]	0.230	0.421	0.010	0.000	0.000	1.000
pK[8]	0.746	0.435	0.011	0.000	1.000	1.000
pK[9]	0.788	0.408	0.010	0.000	1.000	1.000
pK[10]	0.736	0.441	0.011	0.000	1.000	1.000
pK[11]	0.980	0.142	0.004	1.000	1.000	1.000
pK[12]	0.837	0.369	0.007	0.000	1.000	1.000
pK[13]	0.795	0.403	0.010	0.000	1.000	1.000
pK[14]	0.917	0.275	0.007	0.000	1.000	1.000
pK[15]	0.993	0.086	0.002	1.000	1.000	1.000
pK[16]	0.663	0.473	0.017	0.000	1.000	1.000
pK[17]	0.983	0.129	0.003	1.000	1.000	1.000
pK[18]	0.975	0.158	0.003	0.000	1.000	1.000
pK[19]	0.713	0.452	0.012	0.000	1.000	1.000
pK[20]	0.539	0.498	0.012	0.000	1.000	1.000
pK[21]	0.781	0.414	0.009	0.000	1.000	1.000
pK[22]	0.056	0.230	0.005	0.000	0.000	1.000
pK[23]	0.900	0.300	0.006	0.000	1.000	1.000
pK[24]	0.972	0.166	0.003	0.000	1.000	1.000
pK[25]	0.919	0.273	0.006	0.000	1.000	1.000

Table A.3—Continued

Parameter	mean	sd	MC_error	val2.5pc	median	val97.5pc
pK[26]	0.990	0.100	0.003	1.000	1.000	1.000
pK[27]	0.330	0.470	0.014	0.000	0.000	1.000
pK[28]	0.721	0.449	0.011	0.000	1.000	1.000
pK[29]	0.718	0.450	0.010	0.000	1.000	1.000
pK[30]	0.993	0.086	0.002	1.000	1.000	1.000
sigma	32.320	3.428	0.079	25.850	32.150	39.400
tau	0.979	0.255	0.006	0.549	0.955	1.546
tauK	10.750	2.830	0.063	5.936	10.510	16.980

Table A.4
Violent Crime

Parameter	mean	sd	MC_error	val2.5pc	median	val97.5pc
EmuK	0.920	0.061	0.002	0.805	0.918	1.042
LogK[1]	–0.137	0.107	0.003	–0.338	–0.136	0.075
LogK[2]	0.060	0.105	0.003	–0.147	0.057	0.266
LogK[3]	–0.055	0.110	0.002	–0.272	–0.054	0.160
LogK[4]	0.019	0.108	0.003	–0.190	0.017	0.237
LogK[5]	–0.036	0.101	0.003	–0.234	–0.034	0.160
LogK[6]	–0.203	0.099	0.003	–0.402	–0.199	–0.011
LogK[7]	0.086	0.117	0.003	–0.150	0.087	0.308
LogK[8]	0.013	0.127	0.003	–0.237	0.015	0.259
LogK[9]	–0.063	0.108	0.003	–0.275	–0.065	0.150
LogK[10]	–0.075	0.114	0.003	–0.297	–0.075	0.152
LogK[11]	–0.267	0.104	0.003	–0.480	–0.268	–0.074
LogK[12]	–0.109	0.104	0.003	–0.316	–0.109	0.099
LogK[13]	–0.146	0.105	0.003	–0.354	–0.144	0.060
LogK[14]	–0.193	0.098	0.003	–0.389	–0.192	–0.003
LogK[15]	–0.263	0.158	0.003	–0.567	–0.260	0.038
LogK[16]	–0.072	0.119	0.008	–0.312	–0.074	0.162
LogK[17]	–0.104	0.104	0.003	–0.314	–0.104	0.097
LogK[18]	–0.170	0.104	0.003	–0.381	–0.170	0.042
LogK[19]	–0.009	0.102	0.003	–0.208	–0.010	0.199
LogK[20]	0.013	0.099	0.003	–0.178	0.010	0.214
LogK[21]	–0.023	0.105	0.003	–0.230	–0.023	0.183

Table A.4—Continued

Parameter	mean	sd	MC_error	val2.5pc	median	val97.5pc
LogK[22]	0.178	0.118	0.003	–0.057	0.177	0.408
LogK[23]	–0.054	0.099	0.003	–0.247	–0.055	0.148
LogK[24]	–0.247	0.104	0.004	–0.451	–0.247	–0.044
LogK[25]	–0.070	0.099	0.004	–0.268	–0.069	0.121
LogK[26]	–0.357	0.108	0.004	–0.568	–0.360	–0.145
LogK[27]	–0.122	0.102	0.003	–0.323	–0.123	0.080
LogK[28]	–0.034	0.110	0.003	–0.252	–0.032	0.181
LogK[29]	0.016	0.121	0.003	–0.218	0.016	0.257
LogK[30]	–0.049	0.101	0.003	–0.248	–0.050	0.158
PmuK	0.902	0.297	0.009	0.000	1.000	1.000
SDSigma	0.159	0.008	0.000	0.145	0.159	0.174
SDTau	1.100	0.149	0.003	0.867	1.080	1.424
SDTauK	0.303	0.041	0.001	0.234	0.298	0.395
beta1	0.030	0.058	0.003	–0.087	0.031	0.144
beta2	–0.983	0.083	0.006	–1.143	–0.981	–0.825
beta3	–0.444	0.045	0.002	–0.534	–0.443	–0.353
deviance	2,953.000	25.800	0.624	2,906.000	2,953.000	3,006.000
mu	5.776	0.203	0.004	5.372	5.783	6.185
muK	–0.086	0.067	0.003	–0.216	–0.086	0.042
pK[1]	0.895	0.306	0.005	0.000	1.000	1.000
pK[2]	0.277	0.448	0.011	0.000	0.000	1.000
pK[3]	0.695	0.460	0.012	0.000	1.000	1.000
pK[4]	0.439	0.496	0.013	0.000	0.000	1.000
pK[5]	0.643	0.479	0.012	0.000	1.000	1.000
pK[6]	0.983	0.131	0.003	1.000	1.000	1.000
pK[7]	0.227	0.419	0.010	0.000	0.000	1.000
pK[8]	0.452	0.498	0.014	0.000	0.000	1.000
pK[9]	0.725	0.447	0.012	0.000	1.000	1.000
pK[10]	0.739	0.439	0.011	0.000	1.000	1.000
pK[11]	0.996	0.067	0.001	1.000	1.000	1.000
pK[12]	0.853	0.355	0.008	0.000	1.000	1.000
pK[13]	0.918	0.274	0.007	0.000	1.000	1.000
pK[14]	0.976	0.155	0.004	1.000	1.000	1.000

Table A.4—Continued

Parameter	mean	sd	MC_error	val2.5pc	median	val97.5pc
pK[15]	0.954	0.209	0.004	0.000	1.000	1.000
pK[16]	0.722	0.448	0.026	0.000	1.000	1.000
pK[17]	0.843	0.364	0.010	0.000	1.000	1.000
pK[18]	0.944	0.230	0.006	0.000	1.000	1.000
pK[19]	0.537	0.499	0.012	0.000	1.000	1.000
pK[20]	0.460	0.498	0.014	0.000	0.000	1.000
pK[21]	0.598	0.490	0.013	0.000	1.000	1.000
pK[22]	0.068	0.252	0.006	0.000	0.000	1.000
pK[23]	0.702	0.458	0.013	0.000	1.000	1.000
pK[24]	0.992	0.089	0.002	1.000	1.000	1.000
pK[25]	0.760	0.427	0.013	0.000	1.000	1.000
pK[26]	0.999	0.039	0.001	1.000	1.000	1.000
pK[27]	0.877	0.328	0.007	0.000	1.000	1.000
pK[28]	0.614	0.487	0.011	0.000	1.000	1.000
pK[29]	0.446	0.497	0.013	0.000	0.000	1.000
pK[30]	0.688	0.464	0.012	0.000	1.000	1.000
sigma	39.820	3.783	0.089	32.970	39.720	47.400
tau	0.871	0.225	0.005	0.495	0.858	1.334
tauK	11.490	2.941	0.071	6.430	11.240	18.230

Table A.5
Property

Parameter	mean	sd	MC_error	val2.5pc	median	val97.5pc
EmuK	0.940	0.058	0.002	0.832	0.939	1.055
LogK[1]	–0.039	0.082	0.003	–0.201	–0.039	0.120
LogK[2]	–0.020	0.082	0.002	–0.177	–0.022	0.143
LogK[3]	0.037	0.086	0.002	–0.131	0.037	0.206
LogK[4]	–0.013	0.089	0.003	–0.180	–0.014	0.162
LogK[5]	–0.098	0.086	0.003	–0.271	–0.098	0.070
LogK[6]	–0.031	0.083	0.003	–0.197	–0.028	0.132
LogK[7]	–0.004	0.086	0.002	–0.172	–0.004	0.159
LogK[8]	–0.054	0.084	0.002	–0.212	–0.055	0.107
LogK[9]	–0.172	0.083	0.002	–0.331	–0.172	–0.010
LogK[10]	–0.174	0.082	0.002	–0.338	–0.174	–0.012

Table A.5—Continued

Parameter	mean	sd	MC_error	val2.5pc	median	val97.5pc
LogK[11]	–0.179	0.084	0.003	–0.339	–0.180	–0.011
LogK[12]	0.037	0.084	0.003	–0.129	0.038	0.205
LogK[13]	–0.154	0.091	0.004	–0.332	–0.153	0.025
LogK[14]	–0.105	0.081	0.003	–0.260	–0.107	0.062
LogK[15]	–0.306	0.103	0.003	–0.515	–0.304	–0.109
LogK[16]	–0.062	0.106	0.008	–0.274	–0.063	0.147
LogK[17]	–0.126	0.085	0.003	–0.292	–0.125	0.036
LogK[18]	–0.345	0.081	0.003	–0.508	–0.345	–0.187
LogK[19]	–0.112	0.085	0.004	–0.276	–0.110	0.051
LogK[20]	–0.208	0.082	0.002	–0.367	–0.209	–0.048
LogK[21]	0.060	0.085	0.003	–0.105	0.062	0.217
LogK[22]	–0.014	0.103	0.004	–0.209	–0.016	0.188
LogK[23]	0.037	0.084	0.002	–0.121	0.038	0.206
LogK[24]	–0.013	0.083	0.003	–0.174	–0.014	0.156
LogK[25]	0.125	0.083	0.002	–0.035	0.125	0.295
LogK[26]	0.056	0.087	0.003	–0.111	0.055	0.227
LogK[27]	–0.060	0.083	0.003	–0.223	–0.063	0.099
LogK[28]	–0.024	0.090	0.003	–0.201	–0.025	0.152
LogK[29]	–0.039	0.095	0.003	–0.225	–0.041	0.153
LogK[30]	0.058	0.085	0.003	–0.118	0.059	0.224
PmuK	0.848	0.359	0.010	0.000	1.000	1.000
SDSigma	0.132	0.006	0.000	0.121	0.132	0.143
SDTau	0.903	0.116	0.002	0.706	0.890	1.154
SDTauK	0.291	0.039	0.001	0.225	0.288	0.379
beta1	–0.108	0.048	0.003	–0.203	–0.108	–0.012
beta2	–1.050	0.067	0.004	–1.182	–1.051	–0.921
beta3	–0.274	0.036	0.002	–0.343	–0.274	–0.202
deviance	3,401.000	26.310	0.558	3,353.000	3,400.000	3,455.000
mu	7.059	0.162	0.004	6.744	7.057	7.375
muK	–0.064	0.062	0.002	–0.184	–0.063	0.053
pK[1]	0.681	0.466	0.013	0.000	1.000	1.000
pK[2]	0.603	0.489	0.013	0.000	1.000	1.000
pK[3]	0.332	0.471	0.012	0.000	0.000	1.000

Table A.5—Continued

Parameter	mean	sd	MC_error	val2.5pc	median	val97.5pc
pK[4]	0.559	0.496	0.014	0.000	1.000	1.000
pK[5]	0.878	0.327	0.010	0.000	1.000	1.000
pK[6]	0.648	0.477	0.015	0.000	1.000	1.000
pK[7]	0.528	0.499	0.012	0.000	1.000	1.000
pK[8]	0.743	0.437	0.010	0.000	1.000	1.000
pK[9]	0.980	0.140	0.003	1.000	1.000	1.000
pK[10]	0.986	0.117	0.003	1.000	1.000	1.000
pK[11]	0.980	0.142	0.003	1.000	1.000	1.000
pK[12]	0.322	0.467	0.013	0.000	0.000	1.000
pK[13]	0.953	0.213	0.005	0.000	1.000	1.000
pK[14]	0.895	0.306	0.008	0.000	1.000	1.000
pK[15]	1.000	0.000	0.000	1.000	1.000	1.000
pK[16]	0.730	0.444	0.027	0.000	1.000	1.000
pK[17]	0.930	0.255	0.006	0.000	1.000	1.000
pK[18]	1.000	0.000	0.000	1.000	1.000	1.000
pK[19]	0.908	0.288	0.008	0.000	1.000	1.000
pK[20]	0.997	0.059	0.001	1.000	1.000	1.000
pK[21]	0.242	0.428	0.012	0.000	0.000	1.000
pK[22]	0.559	0.496	0.016	0.000	1.000	1.000
pK[23]	0.326	0.469	0.014	0.000	0.000	1.000
pK[24]	0.565	0.496	0.019	0.000	1.000	1.000
pK[25]	0.072	0.259	0.006	0.000	0.000	1.000
pK[26]	0.268	0.443	0.013	0.000	0.000	1.000
pK[27]	0.763	0.425	0.011	0.000	1.000	1.000
pK[28]	0.607	0.488	0.014	0.000	1.000	1.000
pK[29]	0.662	0.473	0.013	0.000	1.000	1.000
pK[30]	0.239	0.426	0.013	0.000	0.000	1.000
sigma	57.650	5.038	0.113	48.610	57.280	68.300
tau	1.286	0.319	0.006	0.753	1.263	2.015
tauK	12.400	3.261	0.072	6.950	12.050	19.850

Table A.6
Total Index Crimes

Parameter	mean	sd	MC_error	val2.5pc	median	val97.5pc
EmuK	0.936	0.057	0.002	0.832	0.935	1.051
LogK[1]	–0.050	0.078	0.003	–0.203	–0.049	0.108
LogK[2]	–0.007	0.080	0.003	–0.165	–0.008	0.149
LogK[3]	0.023	0.081	0.003	–0.137	0.024	0.183
LogK[4]	–0.009	0.089	0.003	–0.186	–0.006	0.167
LogK[5]	–0.080	0.083	0.002	–0.246	–0.081	0.082
LogK[6]	–0.066	0.079	0.003	–0.214	–0.069	0.096
LogK[7]	0.020	0.079	0.003	–0.139	0.021	0.179
LogK[8]	–0.039	0.086	0.002	–0.206	–0.037	0.128
LogK[9]	–0.155	0.079	0.003	–0.306	–0.154	0.003
LogK[10]	–0.159	0.081	0.003	–0.320	–0.159	–0.001
LogK[11]	–0.197	0.082	0.003	–0.364	–0.196	–0.033
LogK[12]	–0.026	0.084	0.003	–0.184	–0.026	0.141
LogK[13]	–0.147	0.087	0.004	–0.315	–0.146	0.027
LogK[14]	–0.128	0.081	0.003	–0.282	–0.127	0.042
LogK[15]	–0.304	0.097	0.004	–0.492	–0.305	–0.111
LogK[16]	–0.046	0.101	0.008	–0.246	–0.045	0.151
LogK[17]	–0.119	0.082	0.002	–0.277	–0.119	0.048
LogK[18]	–0.321	0.078	0.003	–0.472	–0.322	–0.163
LogK[19]	–0.092	0.083	0.004	–0.256	–0.091	0.067
LogK[20]	–0.114	0.077	0.002	–0.269	–0.115	0.043
LogK[21]	0.038	0.082	0.003	–0.126	0.037	0.203
LogK[22]	0.031	0.101	0.004	–0.165	0.029	0.227
LogK[23]	0.000	0.080	0.003	–0.157	0.001	0.150
LogK[24]	–0.047	0.085	0.004	–0.207	–0.047	0.127
LogK[25]	0.046	0.079	0.003	–0.107	0.046	0.199
LogK[26]	–0.012	0.083	0.004	–0.171	–0.010	0.153
LogK[27]	–0.084	0.078	0.002	–0.238	–0.083	0.072
LogK[28]	–0.017	0.089	0.004	–0.189	–0.016	0.158
LogK[29]	–0.017	0.088	0.002	–0.196	–0.018	0.157
LogK[30]	0.036	0.083	0.003	–0.125	0.035	0.206
PmuK	0.866	0.341	0.010	0.000	1.000	1.000
SDSigma	0.130	0.006	0.000	0.120	0.130	0.141

Table A.6—Continued

Parameter	mean	sd	MC_error	val2.5pc	median	val97.5pc
SDTau	0.912	0.122	0.003	0.714	0.899	1.194
SDTauK	0.287	0.038	0.001	0.224	0.283	0.372
beta1	–0.084	0.045	0.003	–0.176	–0.083	–0.001
beta2	–1.042	0.065	0.006	–1.172	–1.041	–0.922
beta3	–0.309	0.034	0.002	–0.376	–0.308	–0.241
deviance	3,504.000	26.730	0.571	3,452.000	3,503.000	3,559.000
mu	7.338	0.172	0.004	6.996	7.339	7.667
muK	–0.068	0.061	0.003	–0.184	–0.067	0.050
pK[1]	0.746	0.436	0.013	0.000	1.000	1.000
pK[2]	0.542	0.498	0.015	0.000	1.000	1.000
pK[3]	0.380	0.485	0.015	0.000	0.000	1.000
pK[4]	0.530	0.499	0.013	0.000	1.000	1.000
pK[5]	0.836	0.371	0.010	0.000	1.000	1.000
pK[6]	0.797	0.402	0.014	0.000	1.000	1.000
pK[7]	0.395	0.489	0.017	0.000	0.000	1.000
pK[8]	0.677	0.468	0.012	0.000	1.000	1.000
pK[9]	0.973	0.162	0.004	0.000	1.000	1.000
pK[10]	0.976	0.155	0.004	1.000	1.000	1.000
pK[11]	0.991	0.094	0.003	1.000	1.000	1.000
pK[12]	0.626	0.484	0.015	0.000	1.000	1.000
pK[13]	0.951	0.217	0.007	0.000	1.000	1.000
pK[14]	0.942	0.235	0.007	0.000	1.000	1.000
pK[15]	1.000	0.022	0.000	1.000	1.000	1.000
pK[16]	0.677	0.467	0.034	0.000	1.000	1.000
pK[17]	0.931	0.254	0.005	0.000	1.000	1.000
pK[18]	1.000	0.000	0.000	1.000	1.000	1.000
pK[19]	0.874	0.332	0.012	0.000	1.000	1.000
pK[20]	0.929	0.256	0.007	0.000	1.000	1.000
pK[21]	0.332	0.471	0.013	0.000	0.000	1.000
pK[22]	0.374	0.484	0.017	0.000	0.000	1.000
pK[23]	0.497	0.500	0.014	0.000	0.000	1.000
pK[24]	0.719	0.450	0.019	0.000	1.000	1.000
pK[25]	0.290	0.454	0.013	0.000	0.000	1.000

Table A.6—Continued

Parameter	mean	sd	MC_error	val2.5pc	median	val97.5pc
pK[26]	0.546	0.498	0.020	0.000	1.000	1.000
pK[27]	0.859	0.348	0.009	0.000	1.000	1.000
pK[28]	0.568	0.495	0.018	0.000	1.000	1.000
pK[29]	0.587	0.492	0.013	0.000	1.000	1.000
pK[30]	0.334	0.472	0.016	0.000	0.000	1.000
sigma	59.550	5.076	0.141	50.250	59.330	69.560
tau	1.266	0.327	0.007	0.703	1.237	1.974
tauK	12.760	3.312	0.070	7.239	12.450	20.000

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